CAMT 11-1

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CANADIAN ARMY
MANUAL OF TRAINING

RCEME IN CANADA

1962

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PREPARED UNDER THE DIRECTION OF THE CHIEF OF DEFENCE STAFF BY THE DIRECTORATE OF ELECTRICAL AND MECHANICAL ENGINEERING

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INTRODUCTION

The aim of this manual is to give a comprehensive outline of the responsibilities, organization and role of RCEME CA(R) in Canada.

Details of personnel strengths, vehicles and equipment mentioned should be regarded merely as a guide since establishments change frequently to cater for new commitments and equipment.

This manual is published for the information and guidance of RCEME officers and should be read in conjunction with CAMT 1-34, Organization and Administration in Canada and the Canadian Army EME Manual.

This manual is one of a series of RCEME training manuals. The series will comprise the following:

a.	CAMT 11-1	RCEME in Canada
b.	CAMT 11-2	RCEME in the Field
c.	CAMT 11-3	Operation of a RCEME Field Unit
d.	CAMT 11-4	Recovery Technique

This manual supersedes CAMT 11-1, RCEME Training Volume I, Basic Organization and Role 1957.

RCEME IN CANADA

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CHAPTER 1

GENERAL

SECTION 1—AIM, ROLE AND RESPONSIBILITIES

101. Aim

a. The aim of The Corps of Royal Canadian Electrical and Mechanical Engineers is:

(1) to train for war;

(2) to assist other arms and services to train for war by maintaining their equipment in serviceable condition.

102. Role of the Static RCEME Organization

a. The role of the static RCEME organization is to ensure the operational fitness of the technical equipment of the Canadian Army and at the same time hold and train a reserve of manpower to meet the Corps mobilization commitment. This role is achieved by:

(1) effective command and control of RCEME units;

(2) organizing and co-ordinating efficient recovery, inspection and repair facilities at all levels;

(3) giving adequate technical advice to the staff and units;

(4) producing and disseminating technical instructions;

(5) training and upgrading personnel.

103. Responsibilities of the Static RCEME Organization

a. The static RCEME organization is responsible for:

(1) producing policy, standards and techniques for servicing and repair of technical equipment;

(2) repair of technical equipment with certain exceptions which are described in paragraph 104.

(3) repair of equipment on charge to other government agencies as directed by the Minister of National Defence. (Complete detail is contained in CAO 14-1 and EME Manual Management H 042);

(4) recovery of military equipment;

(5) inspection of technical equipment to determine maintenance standards and condition classification;

(6) recommending condemnation of military equipment of RCOC supply;

(7) modification and conversion of military equipment as directed by the Chief of Logistics, Engineering and Development (CLED);

(8) limited fabrication of items of equipment in short supply as authorized by the CLED and for the fabrication of special jigs, tools and fixtures for use as production aids in workshops;

(9) preparation of equipment for special conditions of usage, wadeproofing, articization, etc;

(10) scaling of spare parts, tools and equipment;

(11) advice on ease of maintenance aspects of design;

(12) investigation of tools, equipment materials and processes to determine their suitability for military maintenance for use in testing and repair;

(13) assisting in development of special purpose tools and vehicles used principally by RCEME.

104. **Division of Responsibility Between Corps**

a. The division of responsibility between Corps for unit and field repair is as follows:

(1) *RCE*

RCE is responsible for unit repairs to RCE special engineer equipment and plant, certain generating equipment with output of 50 KW or over (EME Manual Management B 141 refers) and all repairs to equipment integral to buildings which can be repaired in situ. RCE are responsible also for repair of installed pipe fire fighting systems.

(2) *RC Sigs*

RC Sigs is responsible for:

(a) unit repair of signal communication equipment other than that fitted in aircraft or held by RCOC or RCEME units;

(b) field repair of signal communication equipment in fixed installations which can be carried out in situ with the equipment provided on the scale of issue of the unit;

(c) all repairs to cryptographic equipment.

(3) *RCOC*

RCOC is responsible for the repair of furniture, crates, cases, dunnaging materials and similar types of stores; RCEME is responsible for the repair of woodwork on vehicles, weapons and technical stores. Field workshops are responsible for crates and cases required by their respective RCOC platoons.

(4) *Responsibility for Fire Fighting Equipment*

RCEME is responsible for the repair of all wheeled, hand and fixed wall fire extinguishers but recharging of these in the majority of cases is the responsibility of the user unit and RCOC de-depots. RCEME will recharge extinguishers re-

ceived from user units and RCOC depots for repair. Division of responsibility for repair is set out in CAO 107-6.

b. All other unit and field repair of technical equipment in the Cdn Army is the responsibility of RCEME.

SECTION 2—COMMAND AND CONTROL IN CANADA

105. Command and Control

a. CAO 55-1 defines the division of responsibility between Canadian Forces Headquarters (CFHQ) and Commands for command and control of RCEME School, 202 Base Workshop RCEME and the Workshop Branch of No 27 Central Ordnance Depot RCOC. DEME does not command these units but is authorized to issue instructions to them within the limits imposed by this CAO.

b. The RCEME School is under the command of the Commander Eastern Ontario Area. 202 Base Workshop RCEME is under the command of the General Officer Commanding Quebec Command. The Workshop Branch is under the command of the Commandant 27 Central Ordnance Depot RCOC. QR (Army) 3.21, 3.22 and 3.23 provides for this.

c. DEME is a service head who gives technical advice to the staff at CFHQ and advice and instructions on technical matters to command EMEs, 202 Base Workshop, Workshop Branch 27 COD, RCEME School and senior EMEs of formations deployed outside Canada.

d. The Command EMEs do not command the RCEME units in their commands. They are service advisers and command only the personnel on their own Headquarters RCEME establishment. They are authorized to issue instructions on Corps and technical matters to the Area, Camp or Senior EME at the next lower formation.

e. The first level at which a RCEME officer is both a commander and a service adviser is at the area or in some cases camp level. Here the Area/Camp EME is the service adviser at the headquarters and at the same time commands the static company. He does not command any other RCEME units in the area. Area/Camp EMEs are authorized to issue instructions to units on technical matters but a good deal of this is usually handled on the staff net through the medium of area orders.

f. Field workshops in Canada are under command of their respective field formations. However, they are responsible to the commanders of the camps in which they are situated for certain administrative matters. Command and Area EMEs are required to give technical assistance and guidance where necessary and certain technical reports are required by DEME direct from the field workshops.

106. **Command of Static RCEME Companies**

Static RCEME companies are commanded by officers who are appointed commanding officers and have the powers and responsibilities listed in QR Army. A company is frequently made up of a headquarters and two or more workshops. Each of these workshops is commanded by an officer who is appointed 'Officer Commanding' and who is delegated certain powers and responsibilities by his commanding officer. All other ranks and civilians allocated to a static area workshop by a commanding officer are under the command of the officer commanding the workshop. The commanding officer issues not only technical orders but all orders required for the efficient operation of the unit in keeping with QR Army 4.01, 4.02, 4.05 and 4.20 to 4.31 inclusive.

107. **RCEME Personnel in Non-RCEME Units**

a. Some units have a number of RCEME personnel organic to their establishment. These personnel carry out unit repairs to the equipment of the unit and are under command of the commanding officer of the unit for all purposes. A RCEME officer, eg Area or Camp EME etc, is normally available to advise a unit commander on the best technical use that can be made of the RCEME personnel within his establishment. The entitlement to these personnel is based on the unit repair workload. The employment of RCEME personnel on duties other than those connected with their trade will have an adverse effect on the technical efficiency of the unit's equipment. Unit repairs beyond the scope of these RCEME personnel are normally carried out by a static area workshop.

b. The internal allocation and control of these RCEME personnel is the responsibility of the commanding officer. The personnel draw their tools, spare parts etc through their own unit quartermaster.

SECTION 3—TECHNICAL EFFICIENCY OF EQUIPMENT

108. **General**

a. The technical efficiency of equipment depends on design, methods of handling in transit and storage, use, servicing, inspection, modification, repair and in some cases, rebuild.

b. While units or depots holding technical equipment are responsible for maintaining it in a serviceable condition, RCEME is responsible for ensuring that this is done in the most efficient manner. In addition to the responsibility for recovery and repair of unserviceable equipment, RCEME is concerned with:

(1) improvement in equipment design and servicing techniques,

(2) advice on unit servicing,
(3) inspection of equipment and compiling inspection standards,
(4) scaling of spare parts,
(5) defects,
(6) design of test equipment.

109. **Improvements and Defects**

The channel for submission of ideas for the design or improvement of equipment is open to all arms and is set out in CAO 141-1 and 141-2. Reports of failures, defects, or abnormalities are forwarded through RCEME channels in accordance with EME Manual Management H 651 and H 601. The forms are designed so that prompt steps can be taken to rectify similar faults in other equipment in service, to establish usage figures and also to consider any possible effect on future design.

110. **Technical Initiative**

RCEME personnel, with their technical knowledge and close contact with user units, should be consulted immediately by any user who considers that there is any technical defect in his equipment. It is the duty of every RCEME officer and NCO to use his initiative to see that no opportunity is missed to investigate complaints and suggestions from any source and to forward through the proper technical channels any ideas so obtained.

111. **Customer Service**

a. When equipment arrives at a workshop for repair, every effort must be made to repair it and return it as quickly as possible. If they are not available in stock, parts must be pre-ordered in the first instance with a priority assigned in accordance with Chapters 400 to 402 of the Canadian Army Manual of Ordnance Services, Volume 2.

b. It is the job of the production supervisor to expedite the completion of work once it has been received by the workshop. Aggressive follow-up is required by RCEME personnel at all levels. The initiation of successful follow-up lies with the control officer and production supervisor. The parts chaser and scales NCO can expedite the procurement of parts and can take corrective action under the direction of the control officer.

c. The proper initiative at all levels will ensure the most rapid yet efficient service to the user units.

SECTION 4—MILITARY AND TECHNICAL TRAINING

112. RCEME personnel must be soldiers first and tradesmen second. Their training must be carefully balanced between the somewhat divergent requirements of these two roles. It must, however, be remembered that their task is a technical one which must be carried out in a military fashion.

113. The RCEME School is responsible, under the direction of the Chief of Personnel (CP) Branch, for:

a. special-to-corps training of recruits,

b. trades and specialist training,

c. the training of apprentices,

d. the training of officers,

e. first and second phase training of ROTP/COTC officer cadets.

114. The commanding officers of RCEME units are responsible for the continuation of military and technical training of RCEME personnel under their command. The military training of RCEME personnel in non-RCEME units is the responsibility of unit commanders. Group 3 tradesmen usually will be posted to non-RCEME units thus leaving the responsibility for trades upgrading training in the hands of RCEME unit commanders.

CHAPTER 2

ORGANIZATION OF STATIC RCEME SERVICES IN CANADA

SECTION 1—GENERAL

201. Outline Organization

a. The outline organization of RCEME is shown in Figure 1, below.

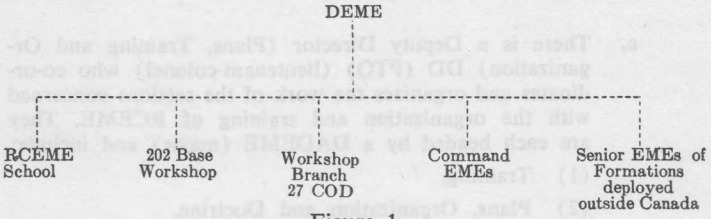


Figure 1

b. Details of command and control are described in chapter 1, Section 2.

SECTION 2—ORGANIZATION OF DEME

202. General

a. DEME is organized as shown in Figure 2.

b. The functions of the sections in DEME are set out in the following paragraphs.

203. Mission

a. DEME's mission is to maintain a state of training and professional knowledge in the Corps of RCEME adequate for the support of the Canadian Army in peacetime and on mobilization. DEME is responsible to the CLED for:

(1) implementation of the Canadian Army repair policy;

(2) technical inspection of all electrical and mechanical equipment in the Canadian Army;

(3) control of RCEME workshop programs;

(4) advice on the disbursement of funds for civilian contracts in support of workshop facilities;

(5) production of the EME Manual under the authority of CAOs;

(6) advice on the distribution of RCEME manpower, including civilians, in RCEME establishments;

(7) advice on the technical aspects of equipment;

(8) the spare parts scales policy in the Canadian Army;

(9) advice to the Chief of Personnel (CP) Branch on the technical training of RCEME personnel;

(10) advice to CP Branch on the appointment and employment of RCEME personnel.

204. **Plans, Training and Organization**

a. There is a Deputy Director (Plans, Training and Organization) DD (PTO) (lieutenant-colonel) who co-ordinates and organizes the work of the sections concerned with the organization and training of RCEME. They are each headed by a DADEME (major) and include:

(1) Training,

(2) Plans, Organization and Doctrine,

b. The DD (PTO) is responsible for:

(1) planning and co-ordination of training of RCEME for peace and war in conjunction with CP Branch and RCEME School;

(2) formulating and promulgating policy relating to the functions of all RCEME units;

(3) division of responsibility for the servicing and repair of army technical equipment;

(4) the preparation of:

(a) RCEME trade specifications and training standards;

(b) trade tests in conjunction with RCEME school;

(c) the RCEME aspects of the mobilization plan;

(d) RCEME field establishments and amendments thereto;

(e) amendments to RCEME static establishments;

(f) training pamphlets, orders and instructions which concern RCEME training or doctrine;

(g) RCEME officer qualification examinations, CA(R) and CA(M);

(h) special exercises and conducting same for senior officers of the Corps.

(i) Corps doctrine and dissemination of same;

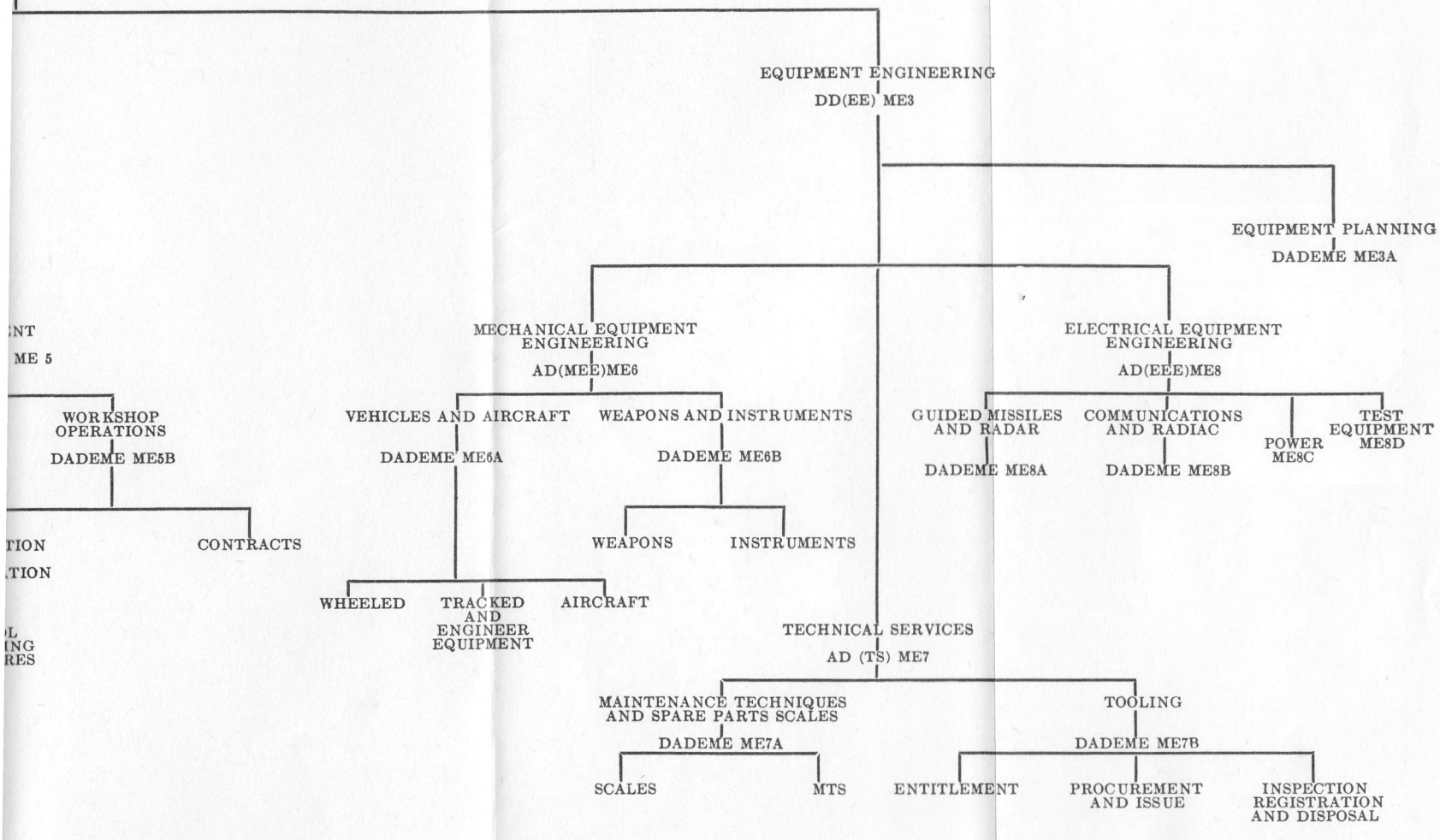
(j) military characteristics (MCs) for RCEME special equipment vehicles (SEVs), shelters, etc.

ANNEX A

ZATIONAL CHART

ND MECHANICAL ENGINEERING

ME



gure 2

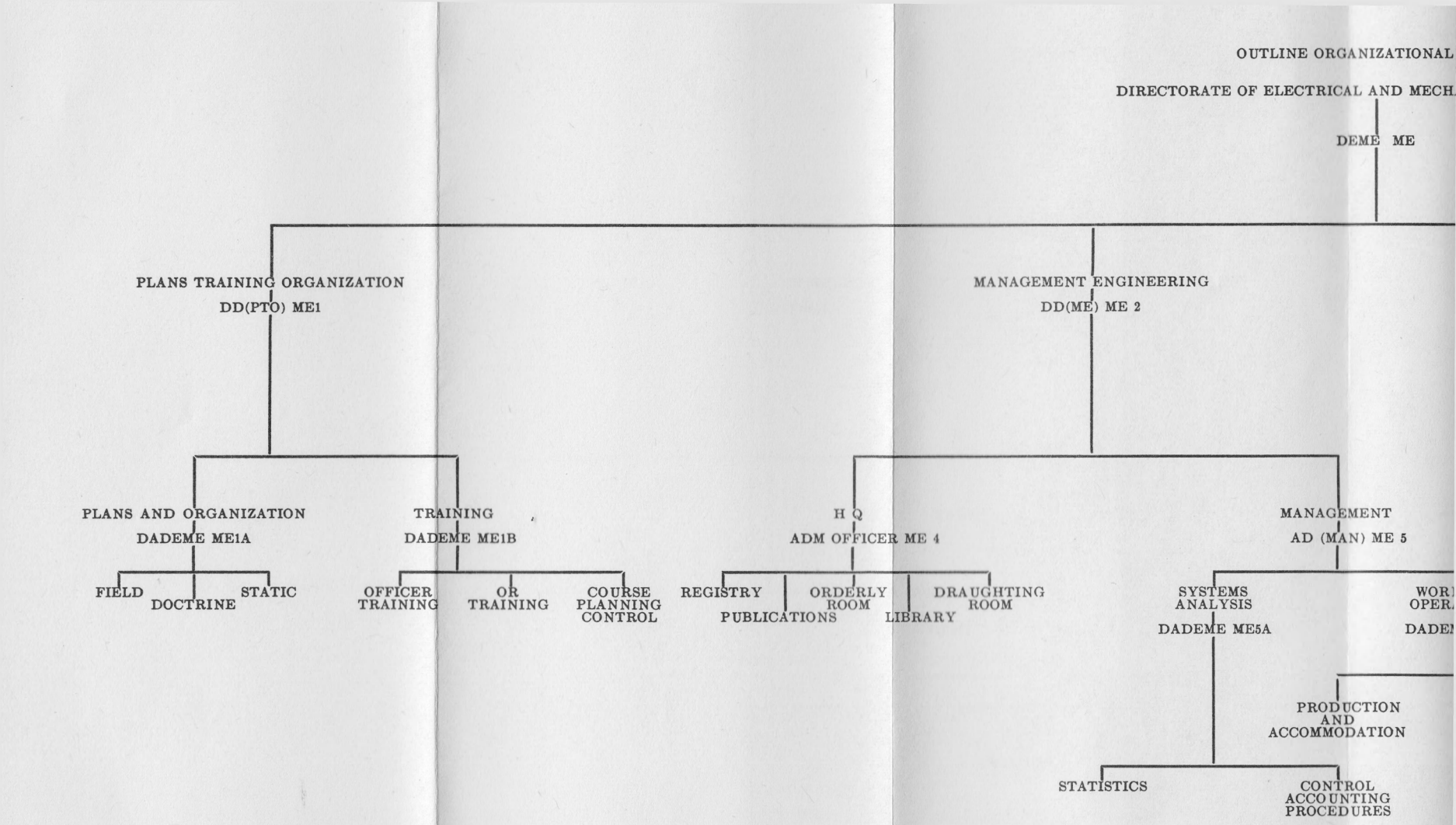

OUTLINE ORGANIZATIONAL
DIRECTORATE OF ELECTRICAL AND MECH
DEME ME
PLANS TRAINING ORGANIZATION
DD(PTO) ME1
MANAGEMENT ENGINEERING
DD(ME) ME 2
PLANS AND ORGANIZATION
DADEME ME1A
TRAINING
DADEME ME1B
H Q
ADM OFFICER ME 4
MANAGEMENT
AD (MAN) ME 5
FIELD
DOCTRINE
STATIC
OFFICER TRAINING
OR TRAINING
COURSE PLANNING CONTROL
REGISTRY
PUBLICATIONS
ORDERLY ROOM
LIBRARY
DRAUGHTING ROOM
SYSTEMS ANALYSIS
DADEME ME5A
PRODUCTION AND ACCOMMODATION
STATISTICS
CONTROL ACCOUNTING PROCEDURES

Figure 2

205. **Training**

a. The Training sub-section:

(1) prepares submissions to CP Branch and recommends candidates for the following types of courses:

(a) training at public expense,

(b) training with industry,

(c) service courses abroad,

(2) arranges special training or courses for individuals or groups who do not fall within the regular approved training program;

(3) arranges industrial tours for artificer and officer courses and arranges for special lectures for officer courses;

(4) computes the annual requirements of tradesmen to take care of wastage and expansion within the Corps and computes the annual intake of recruits and apprentices;

(5) prepares and amends the Courses Schedule and Allotment of Vacancies in conjunction with RCEME School;

(6) recommends the procurement of training films to the Joint Services Training Film Bureau and arranges for loans of films from organizations;

(7) recommends the training aid requirements of the Corps to CP Branch;

(8) makes liaison visits to RCEME School to ensure that policy is being correctly interpreted, to solve problems and to reduce correspondence;

(9) writes, reviews and amends officer training standards and material and submits them to CP Branch for approval;

(10) reviews and recommends amendments to RCEME trade specifications, training standards and militia trade training standards; liaises with CP Branch in writing trade specifications and sponsors them to the Army Trades Committee;

(11) writes trade tests in conjunction with RCEME School and checks and amends all trade tests and submits them to CP Branch for approval;

(12) selects and recommends training publications and texts for procurement to CP Branch and DGMP for specification reference material and Standard RCEME Reference Libraries;

(13) produces training standards for regimental and special courses and reviews course syllabi to ensure that the training conducted at RCEME School is in accordance with the authorized specifications or standards;

(14) recommends postings in Canada and Europe for 3rd Practical Phase officer cadets and postings in Canada for 4th Phase officer cadets;

(15) prepares ROTP and COTC training standards for 1st and 2nd Practical Phase training in conjunction with RCEME School and prepares ROTP and COTC training standards for 3rd Practical Phase training;

(16) co-ordinates the preparation of and participates in the setting of Lieutenant to Captain and Captain to Major Part II promotion examinations;

(17) writes the direction to Commands for the RCEME portion of the militia practical qualifying examinations and prepares the RCEME portion of the militia written qualifying examinations;

(18) prepares lists of study material for Part II promotion examinations and sets limits for examinations;

(19) handles RCEME Corps Association correspondence and co-ordinates RCEME Corps Association competitions;

(20) prepares and reviews drafts of recruiting material for CP Branch;

(21) prepares lecture and speech outlines for the Director on assigned subjects;

(22) prepares policy for the handling of Corps public relations matters and screens, rewrites and approves all papers and articles from RCEME personnel which might be suitable for publication in the Canadian Army Journal or the RCEME Technical Bulletin.

206. **Plans, Organization and Doctrine**

a. The Plans, Organization and Doctrine sub-section:

(1) conducts detailed studies to design and substantiate the establishments for RCEME field and static units or elements to support new or revised field force or static organizations approved by the Staff;

(2) designs and substantiates the RCEME units and establishments forming part of the Canadian Army Mobilization Plan;

(3) prepares, maintains and holds the directorate notes in support of the Canadian Army War Book;

(4) prepares estimates of manpower and vehicles for the RCEME field units to support new or revised organizations under study by the Staff;

(5) recommends on the inclusion of RCEME personnel and vehicles in other Corps or headquarters units;

(6) studies and designs the role and organization of The RCEME components of the militia;

(7) assesses and comments on Staff studies of manpower, trade or rank structure problems;

(8) co-ordinates the study and prepares directorate comments on proposed CAOs and Branch Instructions;

(9) studies and prepares comments on equipment policy statements and directives that have implications affecting RCEME;

(10) plans for detailed RCEME support for national survival operations;

(11) conducts Staff studies as directed;

(12) maintains files of directorate TOP SECRET documents;

(13) provides officers as required to observe and assist RCEME field units with organization problems during summer exercises;

(14) originates primary military characteristics (functional requirements) for equipments to be employed by user units within the Corps;

(15) provides a representative to accompany the Army Establishment Committee (AEC) and their representatives at both preliminary investigations and meetings when reviewing RCEME static establishments;

(16) conducts manpower, officer requirement and rank structure studies and prepares RCEME rank structure submissions;

(17) prepares and maintains:

(a) RCEME yardsticks for calculating personnel requirements for field units,

(b) RCEME staffing guide for computing and checking the establishments and organizations of static units;

(18) forecasts the pattern of RCEME field operations to support new concepts and produces it in document form;

(19) prepares RCEME doctrine for field and national survival operations and produces it in document form;

(20) prepares plans, organization and doctrine briefs and submissions to the CLED to seek approval for proposed documents;

(21) notifies all directorates, Command EMEs and RCEME School of new and proposed Corps doctrine;

(22) provides a RCEME representative for war games, trials and tests where new concepts or methods are being either sought or tested;

(23) prepares submissions to justify RCEME sponsored trials to determine doctrine, prepares directives for the trials and evaluates the results;

(24) reviews US and British literature to ensure that RCEME is keeping up to date with new developments, procedures and equipment;

(25) prepares drafts of texts on RCEME subjects for Canadian Army Manuals;

(26) writes RCEME manuals and amendments as necessary;

(27) reviews Canadian Army Manuals for implications affecting the organization and doctrine of the Corps of RCEME;

(28) provides a member to represent the Directorate on non-material standardization;

207. **Equipment Engineering**

a. There is a Deputy Director (Equipment Engineering) DD (EE) (lieutenant-colonel) who co-ordinates the work of the technical sections of the Directorate. Sections, each headed by an ADEME (lieutenant-colonel), include:

(1) Mechanical Equipment Engineering Section,

(2) Electrical Equipment Engineering Section,

(3) Technical Services.

b. The DD (EE) is responsible for:

(1) formulating and promulgating policy relating to:

(a) spare parts scales,

(b) permissive repair within the general policy provided by DD (PTO),

(c) repair procedures and development of engineering repair time standards,

(d) inspection procedures,

(e) ease of maintenance;

(2) the planning and co-ordinating of RCEME support for new equipments including:

(a) spare parts scales,

(b) tools and test equipment entitlements,

(c) technical manuals and instructions to units and workshops;

(3) advice to the DEME on all equipment engineering matters;

(4) advice to the DD(PTO) on the technical aspects of military characteristics (MCs) for RCEME user equipment and on the technical aspects of organization, trades training, specifications etc.;

(5) screening the minutes of senior committees;

(6) comments and replies concerning:

(a) standardization of equipment,

(b) MCs on other than RCEME user equipment,

(c) items submitted under the Suggestion Award Plan,

(d) Qualitative Equipment Requirements (QERs);

(7) QERs on ease of maintenance;

(8) advice on RCEME implications of reliability and obtaining reliability data on equipments already in service;

(9) briefs for the CLED on technical matters;

(10) the initiation and following up of development of RCEME SEVs to meet military characteristics promulgated by DD(PTO).

208. **Mechanical Equipment Engineering (MEE) Section**

a. The ADEME (Mechanical Equipment Engineering) (AD (MEE)) is responsible for directing and co-ordinating the activities of the:

(1) Vehicles and Aircraft sub-section,

(2) Weapons and Instruments sub-section.

b. The AD (MEE) is responsible for:

(1) the technical aspects of all mechanical equipments, excluding hand and machine tools, and keeping informed of the anticipated introduction of such equipments to enable them to be introduced into the Army with proper technical support;

(2) the production and promulgation of technical information covering:

(a) data summaries,

(b) technical descriptions,

(c) unit repair and servicing procedures,

(d) field and base repair instructions,

(e) inspection procedures,
(f) permissive repair schedules,
(g) modifications,
(h) repair specifications (promulgated by the Management Section),
(i) wadeproofing preservation and climatization,
(j) condemnation limits;

(3) Technical advice to:

(a) CFHQ directorates, RCEME units and other sections in DEME,

(b) DSM (Army) on packaging, storage and shipping equipment,

(c) design directorates and users on the preparation of trial directives and the conduct of user trials;

(4) co-ordinating for all equipments, the technical aspects of the use of fuels, lubricants and paints.

c. With respect to the introduction of new equipment into the Canadian Army the MEE Section is responsible for:

(1) the co-ordination of tooling and test equipment requirements with sponsoring Chief of Operational Readiness Branch (COpR) directorates to ensure adequate provision in estimates;

(2) determining the special tools and test equipment required for maintaining the equipment for which AD(MEE) is responsible and for submitting this information to AD(TS) for entitlement and procurement action;

(3) taking any follow-up action necessary to ensure timely provision of such tools and test equipment;

(4) ensuring that RCEME interests are adequately covered in user trial directives and to see that all necessary action regarding the ease of maintenance portion of the trial and normal repair support is in hand.

209. **Electrical Equipment Engineering (EEE) Section**

a. The ADEME (Electrical Equipment Engineering) (AD (EEE)) is responsible for directing and co-ordinating the activities of the:

(1) Communications and Radiac sub-section,
(2) Guided Missiles and Radar sub-section,
(3) Power sub-section,
(4) Test Equipment sub-section.

b. The AD (EEE) has the same responsibilities, in so far as equipments in the categories mentioned in paragraph 209a are concerned, as the Mechanical Equipment Engineering section.

210. **Technical Services (TS) Section**

a. The ADEME (Technical Services) (AD (TS)) is responsible for directing and co-ordinating the activities of:

(1) The Maintenance Techniques (MTS) and Spare Parts Scales sub-section,

(2) the Tooling sub-section.

b. The AD (TS) is responsible also for:

(1) the technical direction of the Command Scales Officers,

(2) co-ordination of the activities of the Scales and MTS Sections in 202 Base Workshop RCEME, Montreal and the Workshop Branch, 27 COD, RCOC, London.

(3) the tooling policy covering condemnation, disposal, replacement, procurement and the necessary budgetary action;

(4) the implementation of the spare parts scales policy;

(5) the preparation of:

(a) purchase descriptions and the provision of specifications and trade references for tools and workshop equipment of commercial patterns used by the Army and for special tools used in the RCEME repair function (excluding electronic test equipment);

(b) entitlement documents for RCEME units;

(c) spare parts scales;

(d) EME Manual instructions related to the section functions;

(6) liaison with:

(a) British and US scales and equipment maintenance branches;

(b) DD (PTO) and other directorates to determine COpR Branch requirements;

(c) design and development directorates, on behalf of other DEME technical sections, during development stages of new equipment on ease of maintenance and estimate of wear patterns, in order to develop spare parts scales and tool requirements;

(7) technical advice to:

(a) the COpR Branch on scaling methods;

(b) DMP (Army) on maintenance requirements for spare parts and tools and also the completion of Initial Procurement Data Sheets and vetting of draft contracts for such equipment;

(c) user corps during review of tool entitlements;

(d) DMP (Army) on substitutes for and/or RCEME's ability to fabricate non-procurable spare parts for SMP vehicles;

(e) DCER on technical particulars required for cataloguing tools and workshop equipment.

(8) representing the Canadian Army at Canadian Government Specifications Board Tool Committee Meetings.

211. Management Engineering

a. There is a Deputy Director (Management Engineering) (DD (ME)) (lieutenant-colonel) who is responsible for the internal administration of and the training of other ranks within the Directorate and co-ordinates and organizes the work of the management section, which is concerned with management and production. The management section, headed by an ADEME (Management) (AD) (MAN) (lieutenant-colonel) consists of two sub-sections:

(1) Systems Analysis sub-section;

(2) Workshop Operations sub-section.

b. The DD (ME) is responsible for:

(1) provision of a sub-staff for the Inspector RCEME when required;

(2) formulating and promulgating policy relating to:

(a) the functions of static RCEME units excluding RCEME School;

(b) the methods used to control activities in the static workshop system including job planning, loading, control and time accounting procedures;

(c) the application of Ordnance Instructions in accounting for equipment, parts and stores in RCEME units;

(d) the authorization of fabrication in RCEME workshops;

(3) the maintenance of records and the preparation of estimates including:

(a) maintenance of statistics to permit cost and management analysis of:

i. the operation of static workshops,

ii. the operation of equipment,

iii. the forecasting of life expectancies;

(b) maintenance of records for accommodation;

(c) preparation of estimates for:

i. changes required in accommodation,

ii. funds required for repair by contract;

(4) workshop loading and control of the national backlog;

(5) changes required to overcome management weaknesses;

(6) changes required to plant;

(7) comments and replies concerning observations made against RCEME units by:

(a) the Chief Auditor,

(b) Ordnance Inspection teams.

c. The AD (MAN) under direction of the DD (ME) is responsible for policy direction to RCEME units concerning:

(1) acceptance or repair and fabrication workloads;

(2) workshop control, planning and time accounting procedures, costing of RCEME services and the reporting of these activities;

(3) backloading and reallocation;

(4) condemnation;

(5) use of primary 79 funds for repair and fabrication;

(6) development and modification of accommodation used by RCEME units.

d. AD (MAN) will initiate management studies concerning Corps activities and will authorize, control and direct studies requested by other sections of DEME.

212. **Workshop Operations**

a. The Workshop Operations sub-section:

(1) prepares EME Manual Instructions and draft CAOs on the methods used in management of RCEME units and workshops including:

(a) fabrication,

(b) backloading,

(c) general policy on condemnation of equipment,

(d) safety and prevention of industrial accidents;

(2) prepares Maintenance of Progress Reports and allots priorities in respect of:

(a) engine rebuild production,

(b) base workshop programme in support of CODs,

(c) specific workshop production authorized by DEME,

(d) Centurion tank rebuild programmes in Canada,

(e) CFHQ sponsored projects;

(3) under direction, carries out projects and special studies in connection with layout and accommodation;

(4) advises and liaises with CLED(CE) on RCEME accommodation;

(5) reviews design change recommendations from commands prior to submission for approval;

(6) screens applications for projects referred by CLED (CE);

(7) prepares EME Manual instructions on layout and accommodation (colour, dynamic painting, tool cribs, shadow boards, floor layouts, etc), civilian contract and handling of repair funds;

(8) supervises maintenance of records on RCEME accommodation including building specifications and blueprints, station development book and data files;

(9) maintains a project register on all RCEME accommodation matters;

(10) proposes allocation of repair funds to commands and base workshops;

(11) prepares control and finalization of contract demands and financial encumbrances;

(12) liaises with the Controller General (CG) on requirement for and disbursement of funds;

(13) liaises with Department of Defence Production and contractors as required on contract and financial matters;

(14) authorizes and prepares repair contracts beyond command limits;

(15) prepares annual and supplementary estimates;

(16) reviews contractual documents sent to DEME to ensure compliance with policy, instructions and fair pricing.

213. **Systems Analysis**

a. The Systems Analysis sub-section:

(1) is responsible for setting up and analyzing the results of management studies and surveys;

(2) advises on work and method studies carried out in the Corps;

(3) liaises with Maintenance Techniques section regarding method studies, work measurement and standard time study requirements;

(4) summarizes and maintains all statistical data derived from time accounting returns, workshop loading returns, industrial accident returns and such special surveys as may be required periodically;

(5) analysis of all statistical data;

(6) presents all studies and analysis in graphic or tabular form;

(7) liaises with DCER regarding compilation of statistical data by Automatic Data Processing System (ADPS);

(8) observes on irregularities in the reporting system and indications of mismanagement in the reporting units;

(9) prepares EME Manual instructions, draft CAOs and other instructions on the procedures used in the management of RCEME units and workshops including:

(a) job planning,

(b) workshop loading,

(c) job control,

(d) time accounting,

(e) control and accounting of tools and stores received for repair and spare parts.

214. **Inspector RCEME**

a. The Inspector RCEME is an officer in DEME who, together with a team of specialists, is sent out periodically to survey RCEME operations. The survey of each unit will normally cover the following points:

(1) mission, organization and statements of duties;

(2) action taken to dispose of surplus labour;

(3) management techniques in use;

(4) training programs for trades upgrading, senior NCO assessment and artificer assessment;

(5) workshop procedures and control of workshop loading;

(6) adequacy of workshop accommodation and tooling and procedure for checking tool usage;

(7) spare parts scaling, usage and supply;

(8) make recommendations to DEME.

SECTION 3—ORGANIZATION OF MAJOR RCEME UNITS

215. RCEME School

a. The RCEME School is organized as shown in Figure 3, below.

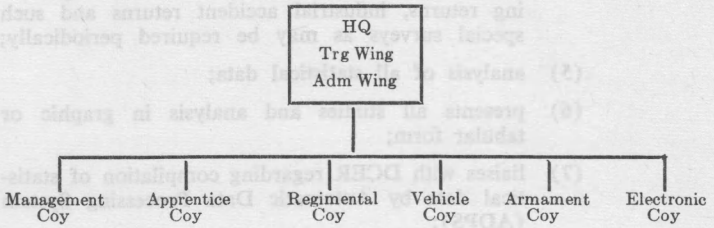


Figure 3

b. The functions of RCEME School are as follows:

(1) Corps training of all RCEME recruits.

(2) Trades training of all RCEME tradesmen and certain technical tradesmen in other Corps, by initial training, upgrading and refresher courses.

(3) RCEME Senior NCO qualification courses.

(4) Training of all RCEME officers by initial Corps and technical training, refresher and specialist technical courses.

(5) Training of RCEME ROTP and COTC.

(6) Training of soldier apprentices for RCEME.

216. 202 Base Workshop RCEME

a. 202 Base Workshop is organized as shown in Figure 4

b. The functions of 202 Base Workshop are as follows:

(1) Maintain and repair technical stores, tracked vehicles and engineer equipment held in 25 COD stock and mobilization reserve.

(2) Effect base repairs to technical equipment from Central and Quebec Commands.

(3) Inspect technical equipment in 25 COD stock and:

(a) advise the Commandant as to condition;

(b) provide CFHQ with data for planning repair programs.

(4) The Technical Stores Scales and Maintenance Techniques Section which is a sub-section of and comes under DEME for technical direction, is responsible for:

(a) Production and maintenance of spare parts issue scales, preparation of provision scales, initial and overhaul.

(b) Development and application of standard repair times, development of servicing and

repair technique, development of Permissive Repair Schedules, investigation and development of special purpose tools and investigation of painting techniques.

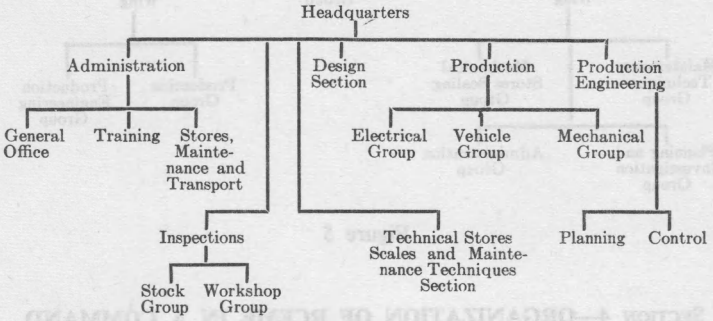


Figure 4

217. **Workshop Branch, 27 Central Ordnance Depot RCOC**

a. The Workshop Branch is organized as shown in Figure 5.

b. The functions of the branch are as follows:

(1) Inspection of mechanical equipment in 27 COD and advice to the Commandant in regard to its condition.

(2) Provides EME services to units located in Western Ontario Area.

(3) Responsible for maintenance of wheeled vehicles and engineer equipment in the mobilization reserve and in 27 COD stock.

(4) Effects base repairs to wheeled vehicles and components for 27 COD.

(5) Effects field repairs to wheeled vehicles for issue from 27 COD Stock Vehicle Park.

(6) Repairs, preserves and maintains in preservation, wheeled vehicles and engineer equipment in the mobilization reserve and in 27 COD Stock Vehicle Park.

(7) The Technical Services Department which is a sub-section of and comes under DEME for technical direction, is responsible for:

(a) Production and maintenance of spare parts issue scales, preparation of provision scales, initial and overhaul.

(b) Development and application of standard repair times, development of servicing and repair technique, development of Permissive Repair Schedules, investigation and development of special purpose tools and investigation of painting techniques.

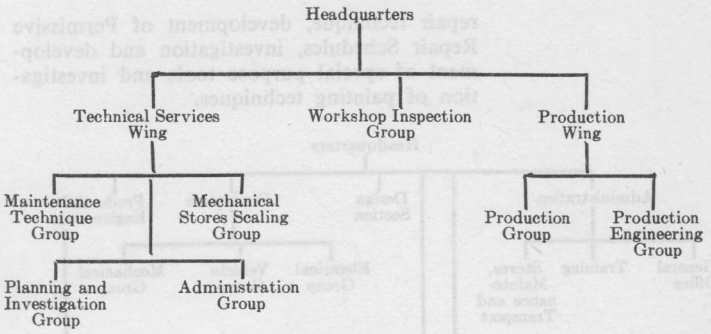


Figure 5

SECTION 4—ORGANIZATION OF RCEME IN A COMMAND

218. Outline Organization

Figure 6 below shows a typical organization of RCEME in a command.

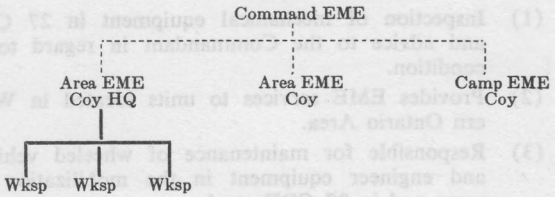


Figure 6

219. Establishment of HQ RCEME of a Command

a. The following constitutes a typical establishment for a command EME's office:

CO and Comd EME, Lt Col		1
Deputy Comd EME, Maj		1
Scaling Officer, Lt		1
Lt		1
	Total Officers	4
Clk Adm,	WO2	1
	Cpl	2
	Cfn	1
	Total Tradesmen	4

Clerk	Civ	1
Stenographer	2, Civ	1
	Total Civilians	2
	TOTAL ESTABLISHMENT	10

b. The functions of HQ RCEME of a command are:

(1) Control and supervision of RCEME units and co-ordination of EME services within the command under the terms of CAO 55-1.

(2) Advice to the GOC on equipment maintenance, preservation and storage.

(3) Advice to the GOC on all matters concerning the operation, training and administration of CA(R) and CA(M) RCEME units in the command within the terms of CAO 55-1.

220. **Organization of a RCEME Static Company**

There are two basic organizations for a static RCEME company. One is for a company with only one workshop and the other for a company with two or more workshops. These organizations are described in paragraph 225 and illustrated in Annex A.

SECTION 5—ORGANIZATION WITHIN COMMANDS

221. **Organization within Eastern Command**

a. Static RCEME units are organized within Eastern Command as shown in Figure 7, below:

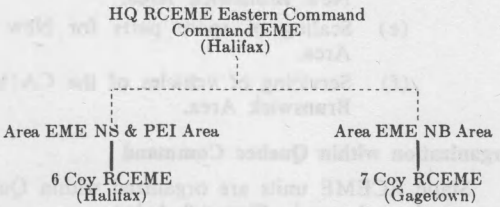


Figure 7

b. Command and control of these units is described in Section 2 of Chapter 1.

c. The functions of each of these units are as follows:

(1) *6 Coy RCEME*

(a) Co-ordination and technical supervision of RCEME services in Nova Scotia and Prince Edward Island Area.

(b) Advise the Area Commander on all matters concerning:

i. maintenance, preservation and storage of equipment in the Area;

ii. the operation, training and administration of RCEME CA (R) and CA (M) units in the Area.

(c) Inspection of technical equipment in Nova Scotia, Prince Edward Island and Newfoundland Area.

(d) Provision of repair and recovery to units in Nova Scotia and Prince Edward Island Area and assistance to Newfoundland Area as required.

(e) Scaling of spare parts for Nova Scotia and Prince Edward Island Area and Newfoundland Area.

(f) Servicing of vehicles of the CA(M) in Nova Scotia and Prince Edward Island Area.

(2) *7 Coy RCEME*

(a) Co-ordination and technical supervision of RCEME services in New Brunswick Area.

(b) Advise the Area Commander on all matters concerning:

i. maintenance, preservation and storage of equipment in the Area;

ii. the operation, training and administration of RCEME (CA(R)) and CA(M) units in the Area.

(c) Inspection of technical equipment in New Brunswick Area.

(d) Provision of repair and recovery to units in New Brunswick Area.

(e) Scaling of spare parts for New Brunswick Area.

(f) Servicing of vehicles of the CA(M) in New Brunswick Area.

222. **Organization within Quebec Command**

a. Static RCEME units are organized within Quebec Command as shown in Figure 8, below.

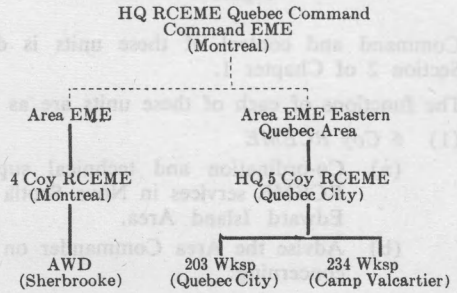


Figure 8

b. Command and control of these units is described in Section 2 of Chapter 1.

c. The functions of each of these units are as follows:

(1) *4 COY RCEME*

(a) Co-ordination and technical supervision of RCEME services in Quebec Command, less Eastern Quebec Area and 202 Base Workshop RCEME, and command of the AWD in Sherbrooke.

(b) Inspection of technical equipment in Quebec Command, less Eastern Quebec Area and 202 Base Workshop RCEME.

(c) Provision of repair and recovery to units in Quebec Command less Eastern Quebec Area and 202 Base Workshop RCEME.

(d) Scaling of spare parts for Quebec Command less Eastern Quebec Area, 25 COD and 202 Base Workshop RCEME.

(e) Servicing of vehicles of the CA(M) in Quebec Command less Eastern Quebec Area.

(2) *5 COY RCEME*

(a) Co-ordination and technical supervision of RCEME services in Eastern Quebec Area and command of 203 and 234 Workshop.

(b) Advise the Area Commander on all matters concerning:

i. maintenance, preservation and storage of equipment in the Area;

ii. the operation, training and administration of RCEME CA(R) and CA(M) units in the Area.

(c) Inspection of technical equipment in Eastern Quebec Area.

(d) Scaling of spare parts for Eastern Quebec Area.

(e) Servicing of vehicles of the CA(M) in Eastern Quebec Area.

(f) Provision of repair and recovery to units in Eastern Quebec Area less Camp Valcartier, (No 203 Workshop).

(g) Provision of repair and recovery to units in Camp Valcartier, (No 234 Workshop).

223. **Organization within Central Command**

a. Static RCEME units are organized within Central Command as shown in Figure 9, below:

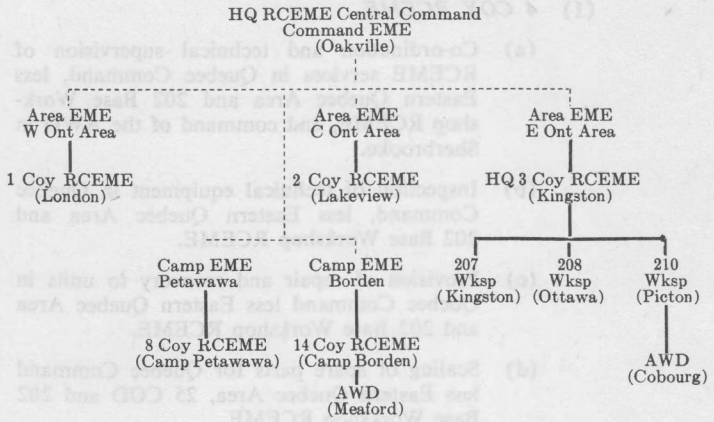


Figure 9

b. Command and control of these units is described in Section 2 of Chapter 1.

c. The functions of each of these units are as follows:

(1) *1 COY RCEME*

(a) Co-ordination and technical supervision of RCEME services in Western Ontario area, less 27 COD RCOC.

(b) Inspection of technical equipment in Western Ontario area, less 2 COD RCOC.

(c) Servicing of militia vehicles in Western Ontario Area.

(2) *2 COY RCEME*

(a) Co-ordination and technical supervision of RCEME services in Central Ontario Area less Camp Borden and Meaford.

(b) Inspection of technical equipment in Central Ontario Area, less Camp Borden and Meaford.

(c) Provides EME services to units located in Central Ontario Area less Camp Borden and Meaford.

(d) Scaling for Central Ontario Area less Camp Borden and Meaford.

(e) Servicing militia vehicles in Central Ontario Area.

(3) *3 COY RCEME*

(a) Co-ordination and technical supervision of RCEME services in Eastern Ontario Area less Camp Petawawa and commands 207, 208 and 210 Workshop.

(b) Inspection of technical equipment in Eastern Ontario Area and Camp Petawawa.

(c) Scaling for Eastern Ontario Area, less Camp Petawawa.

(d) Servicing of militia vehicles in Eastern Ontario Area.

(e) 207 Workshop provides EME services to units located in and near Kingston including National Defence College and Canadian Army Staff College.

(f) 208 Workshop provides EME services to units located in and near Ottawa.

(g) 210 Workshop provides EME services to units located in and near Picton and has command and control of the AWD in Cobourg.

(4) *8 COY RCEME*

(a) Co-ordination and technical supervision of RCEME services in Camp Petawawa.

(b) Provides EME services to units located in Camp Petawawa.

(c) Inspecting of technical equipment in Camp Petawawa.

(d) Scaling for Camp Petawawa.

(5) *14 COY RCEME*

(a) Co-ordination and technical supervision of RCEME services in Camp Borden and Meaford.

(b) Provides EME services to units located in Camp Borden and Meaford.

(c) Inspection of technical equipment in Camp Borden and Meaford.

(d) Scaling for Camp Borden and Meaford.

224. **Organization within Western Command**

a. Static RCEME units are organized within Western Command as shown in Figure 10, below:

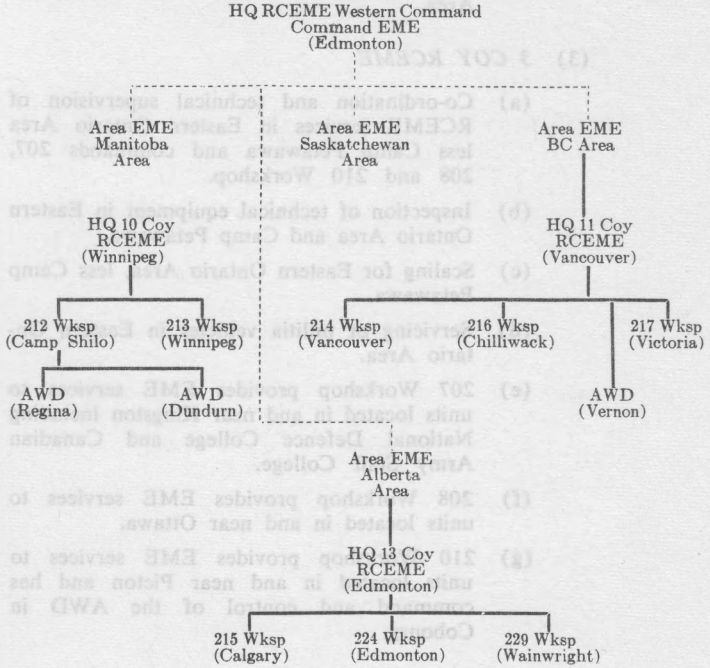


Figure 10

b. Command and control of these units is described in Section 2 of Chapter 1.

c. The functions of each of these units are as follows:

(1) *10 COMPANY RCEME*

(a) Co-ordination and technical supervision of all RCEME services in Manitoba Area less aircraft maintenance in CJATC and commands 212 and 213 Workshop.

(b) Scaling for Manitoba and Saskatchewan Area less Army Aircraft Maintenance Wing of CJATC.

(c) Inspection of technical equipment less aircraft in Manitoba Area.

(d) Servicing of militia vehicles in Manitoba Area.

(e) 212 Workshop provides EME services to units located in Camp Shilo and CJATC (Army Component) Rivers. Commands AWDs in Regina and Dundurn, Sask.

(f) AWDs in Regina and Dundurn provide EME services to units in Saskatchewan Area.

(g) 213 Workshop provides EME services to units in Manitoba Area less Camp Shilo, and Rivers.

(2) *11 COMPANY RCEME*

(a) Co-ordination and technical supervision of RCEME services in British Columbia Area and commands 214, 216 and 217 Workshop and the AWD at Vernon.

(b) Inspection of technical equipment in British Columbia Area.

(c) Servicing of militia vehicles in British Columbia Area.

(d) Scaling for British Columbia Area.

(e) 214 Workshop provides EME services to units located in British Columbia Area less Camp Chilliwack and Vancouver Island.

(f) 216 Workshop provides EME services to units located in Camp Chilliwack area.

(g) 217 Workshop provides EME services to units located on Vancouver Island.

(3) *13 COMPANY RCEME*

(a) Co-ordination and technical supervision of RCEME services in Alberta Area and commands 215, 224 and 229 Workshop.

(b) Inspection of technical equipment in Alberta Area.

(c) Scaling for Alberta Area.

(d) Servicing of militia vehicles in Alberta Area.

(e) 215 Workshop provides EME services to units located in the Calgary area.

(f) 224 Workshop provides EME services to units located in the Edmonton area.

(g) 229 Workshop provides EME services to units located in Camp Wainright.

SECTION 6—UNIT ORGANIZATION

225. **Organization**

a. The internal organization of a RCEME company with two or more workshops consists of:

(1) *Company Headquarters*—with the following sections:

Orderly Room
Scaling Section (for all workshops)
Inspection and militia Servicing Section (MSS).

(2) *Workshop Headquarters*—(for each workshop) with the following sections:

(a) *Administration*

Orderly Room
QM and Technical Stores
Regimental Duties
Transport and Recovery.

(b) *Control and Planning*

Control Office
Production Inspections
Shipping and Receiving
Local Contract.

(c) *Production*

Vehicle Shop with sub-sections
Electronic and Electrical Shop
Ancillary Shop with sub-sections.

b. The internal organization of a RCEME company with only one workshop consists of:

(1) *Company Headquarters*—with the following sections:

(a) *Administration*

Orderly Room
QM and Technical Stores
Regimental Duties
Transport and Recovery
Inspection and Militia Servicing Section (MSS).

(b) *Control and Planning*

Control Office
Production Inspections
Shipping and Receiving
Scaling
Local Contract.

(c) *Production*

Vehicle Shop with sub-sections
Electronic and Electrical Shop
Ancillary Shop with sub-sections.

c. A spare parts stores section RCOC is normally located in static workshops and this arrangement provides the best possible support for RCEME operations.

d. A detailed organizational chart is shown in Annex A.

SECTION 7—RCEME SCALES ORGANIZATION

226. General

DEME is responsible for the preparation of scales of spare parts used for repair and for the indication thereon of the proportions of such spares required at the respective stages of the repair services, (see CAO 201-17). The printing and distribution of scales documents is the responsibility of the Directorate of Cataloguing and Equipment Requirements (DCER).

227. Requirement for Scales

RCEME acts as adviser to RCOC in providing a technical assessment of the range and quantities of spares required for repair. From this assessment RCOC calculates total requirements taking into consideration the various provision factors such as store margin, interim period, theatre reserve, production lag, etc. The assessment is given to RCOC through the medium of scales documents which are prepared immediately design particulars are firm and are passed to RCOC to ensure that spares are available when the new equipment comes into service. Scales documents prepared for this purpose are further defined in EME Manual General S 020. In addition, issue scales are prepared indicating the spares and their quantities required for various densities of equipment in the different lines of repair.

228. Organization and Responsibilities

a. The scales organization is divided into two sections, thus paralleling the divisions of the RCOC provision organization. Co-ordination and control of these two sections is maintained at CFHQ by the Technical Services Section in DEME, as mentioned in paragraph 210. The division of responsibilities is as follows:

(1) *Technical Services (Technical Stores Scales Section)* of 202 Base Workshop RCEME, located at Montreal, is responsible for the preparation of scales relating to technical stores which include the following types of equipment normally stocked at 25 Central Ordnance Depot and 26 Central Ordnance Depot:

(a) tracked vehicles except carriers,

(b) weapons and fire control instruments,

(c) signal, radio, line and radiac equipment,

(d) radar, electronic predictors and test gear,

(e) engineering (power and plant) equipment, material handling equipment and associated bridging equipment.

(f) machine tools, workshop equipment except automotive repair, batteries, water purification equipment and petroleum distribution equipment.

(2) *Technical Services Wing (Mechanical Stores Scaling Group)* of the Workshop Branch, 27 COD, located at London, is responsible for the preparation of scales relating to mechanical stores which include the following types of equipment normally stocked at 27 Central Ordnance Depot:

(a) wheeled vehicles, scout cars, motorcycles, trailers and carriers,

(b) earthmoving equipment and cranes,

(c) motive power units for generators and compressors,

(d) automotive repair machinery,

(e) laundries and bath units.

b. The group is also responsible for the preparation of scales relating to aircraft.

c. Scaling duties at the command and company level are carried out by scaling officers and/or NCOs respectively. Their duties are described in Chapter 3 and EME Manual Management D220 and D221 respectively.

SECTION 8—MAINTENANCE TECHNIQUES

229. General

DEME is responsible for advice on the maintenance of all equipments used in the Canadian Army. An important aspect of this responsibility is to ensure that the techniques of maintenance used in the Canadian Army are kept up to date with the latest developments in industry and that practical and economical maintenance techniques are developed for new equipments being introduced.

230. Organization

a. To discharge these responsibilities, the following organizations have been authorized:

(1) In DEME, a Maintenance Techniques Section under direction of the ADEME Technical Services.

(2) A section in 202 Base Workshop Montreal.

(3) A section in Workshop Branch 27 COD, London.

(4) A section in the Army Aircraft Maintenance Wing, CJATC, Rivers.

231. Command, Control and Administration

a. The sections established at Montreal, London and Rivers are under the command of the respective workshop commanders for all purposes except technical direction which is provided by DEME; thus, administration of the section, provision of tooling and equipment, working space, etc, is provided by local arrangements.

b. The section in DEME co-ordinates all projects and assigns them to the sections in London, Montreal and Rivers. These latter sections conduct investigations into the projects allotted within the scope of the responsibilities outlined in paragraph 232.

232. **Responsibilities**

a. Responsibilities of the Maintenance Techiques Section are as follows:

(1) Investigate and develop special purpose tools for tasks that cannot be performed with tools already in general use.

(2) Investigate tools, workshop equipment, materials and processes to determine their suitability for use in maintenance of military equipment.

(3) Represent DEME on Canadian Government Specifications Board Committee working on the preparation of specifications.

(4) Develop Permissive Repair Schedules and tool schedules for newly introduced army equipment.

(5) Investigate and report on new methods, techniques and tooling used in civilian industry and recommend their application to Army use.

(6) Advise Scales Section on spare parts scales for:
(a) workshop tools and equipments,
(b) new equipments.

(7) On request, assist depot inspection section (RCEME) on identification of workshop stores, substitute material, spare parts, etc.

(8) Set up records reflecting savings accomplished as a result of maintenance techniques work.

(9) Development and application of work standards, removal and stripping sequences, maintenance and repair techniques for all equipments.

(10) Preparation of repair manuals and other EME instructions as required.

(11) Arrange user trials on request from other directorates of prototype and other maintenance equipment and materials of which RCEME is the principal user and report on their suitability for adoption as standard.

(12) Examine equipments under development in conjunction with the technical section concerned in DEME to ensure that ease of maintenance aspects are covered.

(13) Examine the economics and practical applications of items forwarded under the Suggestion Award Plan.

(14) Investigate equipment failure and unsatisfactory condition reports in so far as maintenance aspects are concerned.

SECTION 9—EXTRANEOUS RCEME COMMITMENTS

233. RCEME units are established to support the Army, however, EME services may be provided:

a. on a non-recoverable basis:

(1) within the Department of National Defence,

(2) to the Dominion and Provincial Rifle Association for the repair of service pattern small arms;

b. on a recoverable basis for:

(1) the repair of small arms for Federal Penitentiaries,

(2) the repair of small arms for the Royal Canadian Mounted Police,

(3) the emergency repair and recovery of vehicles of Federal Government Departments in remote locations,

(4) the repair of Maple Leaf Services' owned equipment and stores and public property loaned to Maple Leaf Services and for which Maple Leaf Services is responsible for repair,

(5) the emergency recovery of POMC of service personnel and Canadian civilians employed by the Department of National Defence or by other Government Departments or Agencies in Europe, limited to a maximum of 60 miles return trip.

234. Details of the provision of these services are contained in CAO 14-1.

SECTION 10—REPAIR ORGANIZATION

235. **General**

a. The four-line system of RCEME support used in the field is not completely suitable for use in Canada; its counterpart in Canada is as follows:

(1) *Unit Repair.* Unit repair, including recovery, is carried out by RCEME tradesmen included in non-RCEME unit establishments, the militia servicing sections of RCEME companies or the static workshop, whichever is available and most economical.

(2) *Field Repairs.* Field repairs, including recovery, are carried out in static workshops. To some extent, base repairs may be carried out in static workshops with the skills, tooling and manpower they hold.

(3) *Base Repairs (Including repairs beyond the capacity of the static workshop).* The command EME may, after considering the requirement for the unserviceable equipment, the availability of replacement equipment and the economy involved in effecting the repairs:

(a) supplement the facilities of the static workshop from within command resources and carry out the base repairs in the static workshop;

(b) arrange to have the unserviceable equipment repaired in one of his static workshops which can effect the repair;

(c) arrange to have repairs done by civilian contract;

(d) backload the unserviceable equipment.

236. **Static Workshops**

a. Static workshops are established in areas, camps and stations depending on the workload. Their main function is field repairs to equipment of units they serve, but their role is flexible so as to cover all requirements not met by other RCEME units or installations. Thus they may be called upon to assist with militia training and unit repairs. They also have the responsibility of upgrading tradesmen in their trades and training them in diagnosing faults and carrying out unit, field and some base repairs.

b. The number of static workshops in any one command varies from two to eight, depending on the size of the command and the distribution of the troops therein. They are organized into companies in keeping with the organization of commands and areas. The strengths of individual workshops vary from 20 to 220 personnel including civilians. Although small workshops at times appear to be uneconomical, they have to be retained so that RCEME facilities may be within reasonable reach of all units including Militia units. Most RCEME companies are provided with Militia Servicing Sections which perform servicing and unit repair functions for Militia held equipment.

c. Many static workshops have detachments, either temporary or permanent, deployed away from the workshop location. Temporary detachments are often deployed in the training seasons to serve camps. Permanent advanced workshop detachments (AWDs) are situated in locations where there is a small but continuous load some distance from the parent workshop; their existence keeps to a minimum backloading over long distances.

SECTION 11—THE RCEME TRAINING ORGANIZATION

237. General

a. The responsibility for training RCEME personnel in Canada is divided among DEME, RCEME School, commands and units on authority of COpR.

b. Certain training such as annual refresher training is not carried out at RCEME School but, together with nearly all trades upgrading training, is carried out either by units or under command arrangements.

238. DEME

a. DEME is responsible for:

(1) recommending regimental and trades training policy to the COpR Branch and the CP Branch;

(2) preparing trade specifications and training standards;

(3) recommending new course requirements and obtaining approval for them;

(4) arranging special training as required;

(5) recommending candidates for service courses abroad, training with industry and training at public expense;

(6) recommending the procurement and arranging the loan or issue of training aids and films for the Corps;

(7) the selection and procurement of training publications and texts.

(8) organizing and writing of artificer assessment examinations.

b. Detailed responsibilities are shown in paragraph 205.

239. RCEME School

a. The RCEME School is responsible for:

(1) conducting the Corps portion of recruit training;

(2) conducting courses to train and upgrade tradesmen and specialists in RCEME;

(3) qualification of RCEME senior NCOs;

(4) refresher training for RCEME personnel of the Instructional Staff for the Militia;

(5) RCEME apprentice training;

(6) first and second practical phase training for ROTP and COTC;

(7) qualification of newly commissioned RCEME officers;

(8) conducting special equipment courses;

(9) conducting management courses for officers and warrant officers;

(10) preparing and conducting lieutenant and captain Part II qualification examinations for RCEME officers;

(11) preparation and marking of master technician assessment examinations.

b. Details of courses conducted at RCEME School are contained in the Army Manual of Courses—Section 16.

240. **Training by Commands**

a. Commands are responsible for:

(1) training of units in national survival operations;

(2) training of field formations, e.g., brigade concentrations;

(3) junior NCO qualifying courses;

(4) conducting special field exercises such as winter training involving airborne and airportable elements of the Field Force (Canada);

(5) special French/English language training;

(6) training of the Militia and Cadets including summer camps;

(7) supervising master technician assessment examinations;

(8) certain user trails as directed by CFHQ.

241. **Unit Training**

a. The commanding officers of RCEME units are responsible for implementing the training policy of their respective formation commanders. Thus the RCEME unit commander is responsible for:

(1) annual refresher and national survival training;

(2) preparation of personnel for junior and senior NCO courses;

(3) preparation of senior NCOs for master technician courses;

(4) professional advancement training of officers;

(5) recommendation of officers and men for special technical training at other military installations or universities;

(6) trades upgrading training of tradesmen and preparing them for further trades training at RCEME School.

b. Each unit maintains a standard RCEME reference library which provides reference material for trades training.

c. Units must maintain in-job training records for each man and a master chart for the control of trades upgrading training. A sample is shown in Annex B. As each tradesman completes in-job training, the unit will make applicable entries in his ITR and arrange for a trade test to be held.

SECTION 12—RECORDS AND POSTINGS RCEME PERSONNEL

242. The Chief of Personnel (CP) Branch is responsible for handling personnel matters and the records of personnel in the Army. Within CP is a section which handles all RCEME personnel matters. The section:

a. issues posting instructions to fill vacancies in the establishments of units in Canada and for overseas drafts;

b. provides personnel for courses;

c. authorizes promotions of personnel.

243. The section operates in conjunction with DEME, especially with regard to planning of careers of officers and men and their training at RCEME School and elsewhere.

SECTION 13—EMPLOYMENT OF CIVILIANS

244. **General**

a. RCEME headquarters and static units in Canada employ civilians to increase the available labour force, relieve as many military personnel as possible for more active duties and provide the continuity required as a result of the movement of military personnel.

b. The number of civilians employed in a unit in Canada is authorized by the Controller General in conjunction with the Director of Civilian Personnel (Army) (DCP).

c. Civilian personnel positions are detailed in Part V of unit establishments and each position is allotted to control number by the Civil Service Commission, e.g., ND-66 EME-118, Clerk 2, 204 Base Workshop.

d. Civilian trade positions are described as either classified or prevailing rate. Classified positions are those such as clerks, stenographers, cleaners and helpers, watchmen, storemen, technical officers etc. They are normally paid a monthly salary. Prevailing rate employees are those such as carpenters, plumbers, motor mechanics, painters, tinsmiths etc., and they are normally paid an hourly rate for the region they work in.

e. Wage scales for classified positions are established on a national basis, whereas the wage scales for prevailing rate positions are governed by the locality in which the civilian is employed.

f. Only in certain circumstances and on authority of the Civil Service Commission may civilian personnel be moved from one locality to another.

g. Information on civilian personnel administration is set out in The Civilian Personnel Administrative and Accounting Manual—1962.

245. **Trade Testing**

Civilians should be hired either on the basis of a provincial department of labour trade certificate or a trade test. In the latter case, the appropriate army trade test may be used. This will ensure that the Department of National Defence receives the level of skill for which it is paying.

246. **Training**

A trades upgrading program should be conducted for civilian tradesmen similar to the military trades upgrading program. Civilians should be encouraged to apply for a department of labour trade certificate.

SECTION 14—CIVILIAN CONTRACT

247. RCEME may obtain repair and recovery services direct from civilian sources by means of the following types of contract:

a. *Local Purchase Order (LPO).* For minor expenditures and emergency services Commanding Officer 202 Base Workshop and Commandant 27 COD may be delegated a maximum expenditure of up to $500 per order. Area EMEs, Company and Workshop commanders may be delegated to approve purchases up to $250 per order. (See CAO 227-5).

b. *Department of Defence Production (DDP) Requisition.* Non-urgent services usually for amounts from $35 to $10,000 are processed by the Department of Defence Production district office. Limit of authority for commands, base workshops, area EMEs and workshops is $3000. (See CAO 227-6).

c. *Contract Demand (CD).* Usually for program repair, for amounts in excess of $10,000 raised by DEME and processed by DDP, Ottawa.

d. *Dealers Estimate and Work Authorization Order (DEWAO).*

(1) A contract arranged annually with Ford, General Motors, Chrysler and the International Harvester

Company (IHC) for the repair of army vehicles by their respective authorized dealers on an "as required" basis.

(2) Experience has proven that repair of Standard Commercial (SC) vehicles is best suited to the facilities of civilian contractors. However, if it is expedient and economical, the DEWAO system may be applied to Standard Military Pattern (SMP) vehicles providing no substitute commercial parts are used in the repairs.

(3) DEWAO repairs are allocated to the respective representative from whom an estimate has been received and repairs are authorized by the company commander or his delegated officer. Where the manufacturer is represented by more than one dealer in the same locality, repairs are normally allocated to each on an equal rotational basis.

(4) Certain items such as engines, tubes, tires, batteries and paint when required to complete repairs are supplied to the dealers from RCOC stock as "free issues". Special military pattern assemblies, components and parts are also supplied.

(5) Base workshop and company commanders are authorized to expend up to the limits prescribed in EME Manual Vehicles A 114.

e. *Petty Cash.* Used for services when experience indicates that the use of cash, rather than a LPO, for minor purchases not exceeding $25 per order, would reduce administration for RCEME and the contractor. For example, a militia servicing section, employed at an isolated unit, requiring lock or tire repairs would use petty cash funds.

248. The amounts and terms of contract mentioned in paragraph 247 are subject to change. Such changes will be notified in CAOs or EME Manuals.

249. Complete information on the procedure for repair by civilian contract is contained in the EME Manual, Management, section L.

CHAPTER 3

DUTIES OF RCEME OFFICERS AT COMMAND/ AREA/CAMP HEADQUARTERS

SECTION 1—DUTIES OF A COMMAND ELECTRICAL AND MECHANICAL ENGINEER

301. General

The Command EME is technical adviser to the GOC. He implements the technical policy laid down by DEME, co-ordinates the work of the area or camp EMEs/company commanders, provides general supervision and issues technical direction as necessary.

302. Duties

a. The duties of the Command EME will fall generally into the following categories:

(1) *Control and Co-ordination.* Responsibility for the handling of RCEME services in the command and for co-ordination of the recovery and repair loads so as to achieve maximum efficiency.

(2) *Planning.* Preparation of the RCEME plan for proposed operations in conjunction with the staff.

(3) *Inspection and Liaison.* Visits to and inspections of units in the command in order to find out if RCEME services are satisfactory and if RCEME units are being efficiently managed. At the same time he initiates any action necessary to obtain improvement and ensures that inspection at lower levels is being efficiently carried out. He will strive to improve the RCOC/RCEME co-operation at all levels and will investigate and take corrective action on spare parts problems.

(4) *Assistance to Militia.* Provide assistance to RCEME militia units in all aspects of their training, organization and administration where necessary.

(5) *RCEME Personnel.* Effect the general control of RCEME personnel in the command, including such matters as promotions, postings, training and upgrading of tradesmen. This is done mainly by advice and recommendations to the G and A staffs at command headquarters.

(6) *Stores Supply.* Although stores supply is a RCOC responsibility, the command EME must ensure that RCEME requirements are known in good time. He must watch for and deal with any difficulties that may prevent stores being available when and

where required. He must ensure that RCEMEs ability to provide service to user units is not unduly impaired by RCOC service to the workshops. He must ensure that scales are created where required to received and adjusted periodically as usage indicates.

(7) *Assistance to RCEME field units.* Provide technical assistance to units where necessary.

SECTION 2—DUTIES OF A DEPUTY COMMAND ELECTRICAL AND MECHANICAL ENGINEER

303. General

The Deputy Command EME is responsible to the Command EME for the proper functioning of RCEME unit administration, organization, operation and inspection facilities within the command.

304. Duties

a. To carry out his responsibility, the Deputy Command EME will be required to visit RCEME companies and workshops to survey the following and make recommendations on:

(1) customer service to ensure that units are satisfied with RCEME services and that RCEME is satisfied that it is doing its best,
(2) suitability of existing establishments,
(3) organization of units,
(4) control of inspection and MSS teams,
(5) employment of civilians and their management,
(6) workshop procedures,
(7) civilian contract control and procedure,
(8) workload planning and production,
(9) internal economy,
(10) security of equipment received for repair,
(11) suitability of workshop accommodation, tools and equipment,
(12) suitability of spare parts scaling and provision,
(13) financial accounting at all levels.

b. These surveys should be carried out annually with follow-up action being taken on periodic visits.

c. He is the acting Command EME during the absence of the Command EME.

d. He is responsible for the organization and administration of the Command EME headquarters.

e. He maintains personnel and technical statistics as required by the Command EME.

SECTION 3—DUTIES OF RCEME SCALES OFFICERS

305. General

Each command headquarters has a RCEME scales officer who is responsible to the Command EME for investigating and reporting on spare parts requirements and RCEME unit equipment entitlements.

306. Duties

a. The duties of the scales officer, are listed below.

(1) Monitor spare parts procedure by RCEME units and personnel.

(2) Must be familiar with RCOC spare parts supply, demand and issue procedures.

(3) Spot check levels of spare parts in SPSS and ensures that stock levels of spare parts are in accordance with existing scales.

(4) Prepares spare parts scales as necessary.

(5) Maintains constant check on spare parts usage and adjusts scales as necessary.

(6) Reports usage and recommends adjustment of field scales to DEME.

(7) Investigates unusual usage of spare parts.

(8) Provides technical advice to RCEME unit scales NCOs.

(9) Controls demand and issue of spare parts issue scales.

(10) Maintains a complete set of spare parts issue scales for all equipments used within the command and maintains files on equipment entitlement documents for RCEME units in the command.

(11) Investigates new tooling requests of differences which may occur.

(12) Recommends deletions or reductions in non-essential items of tooling where necessary.

SECTION 4—DUTIES OF AREA/CAMP ELECTRICAL AND MECHANICAL ENGINEER

307. General

a. The area EME is the RCEME adviser to the area commander and his staff.

b. He implements the technical policy and plans of the respective command EME and co-ordinates the work of the static RCEME units under his command.

c. Camp EMEs command the static RCEME units within the camp and are RCEME advisers to the camp commander. They implement the Corps policy and plans of the senior RCEME officer at the next higher formation.

d. Area and Camp EMEs are normally commanding officers.

308. **Duties**

The duties of the Area/Camp EME are analogous to those of the Command EME mentioned in paragraph 302.

SECTION 5—DUTIES OF SECOND-IN-COMMAND OF A RCEME COMPANY

309. **General**

In addition to being the senior administrative officer in a company with more than one workshop and the workshop officer in a company with only one workshop, the second-in-command assumes temporary command of the company in the absence of the company commander.

310. **Duties**

a. The duties of the second-in-command of a company with more than one workshop include:

(1) the organization and administration of the unit;

(2) the internal economy of the unit;

(3) the co-ordinating of unit welfare matters;

(4) the maintenance of officers duty and leave roster;

(5) the checking of returns prior to submission to unit commander;

(6) the regimental training, dress and deportment of personnel;

(7) the investigation and conducting of boards of inquiry;

(8) the maintenance of technical and personnel statistics as required by the unit commander.

b. The duties of the second-in-command of a company with only one workshop include:

(1) the supervision and efficient operation of all sections of the workshop including local contract, planning and production;

(2) the maintenance of technical statistics as required.

SECTION 6—DUTIES OF INTERNAL AUDITORS (CIVILIAN TECHNICAL OFFICERS OR WARRANT OFFICERS)

311. **General**

Some RCEME units employ an internal auditor who is responsible to the unit commander for the proper control of administrative and accounting procedures in the unit.

312. **Duties**

a. The internal auditor's duties consist of examining studying and checking all aspects of the following unit functions:

(1) stores accounting procedures,

(2) workshop control procedures,

(3) financial records and procedures, eg local contract and regimental institutes,

(4) transport section function, duties and administration,

(5) administrative procedures in use in the unit.

b. The duties of the internal auditor do not include supervision, direction or command of personnel or operations.

SECTION 7—REQUIREMENTS COMMON TO ALL RCEME OFFICERS AT A HEADQUARTERS

313. The qualities required in a good staff officer, set out clearly in CAMT 1-36, 'Staff Duties in the Field', though essential, are not in themselves sufficient unless they are reinforced by the determination that RCEME shall give the best possible service.

314. These officers must not only have expert knowledge of their own work but must also know in general terms what is happening elsewhere in the headquarters and throughout the command or formation. However, experienced they may be, they can only appreciate the difficulties under which others are working by taking every opportunity of making personal visits in order to keep themselves up to date and find out where help is required.

315. The proper use of tact, especially when turning down a suggestion or refusing a request; loyalty to the opinion of senior officers, even when in personal disagreement; and strict compliance with the requirements of seniority when drafting or signing letters of criticism or disapproval—all these will help to create a sense of good feeling and confidence in the desire and ability of the Corps to be of service.

CHAPTER 4

REPAIR

SECTION 1—GENERAL

401. The aim of the repair system is to keep all the equipment for which RCEME is responsible, serviceable and available to the user. The efficiency of any repair system is dependent upon normal engineering principles, therefore the RCEME repair system must conform to basic engineering practice.

402. When technical equipment becomes unserviceable the main problem to the user is that of the time lapse involved before the equipment is returned serviceable or a replacement is provided. Depending on the degree of unserviceability, an equipment can be either repaired or replaced by a new equipment. User units obtain technical advice, operating and servicing instructions through the medium of EME Manual instructions.

403. Only as a result of planning and controlling the repair workload can the maximum service be given to user units. Labour and parts are the governing factors in loading a workshop and their availability dictates the type of service that RCEME will supply. Therefore, commanding officers must maintain a close check on the availability of tradesmen and spare parts when considering their repair program.

404. Repairs are dealt with in sequence, according to the date on which a 'Request for Services' is received but this normal sequence may be modified for several reasons. The value or scarcity of an equipment may lead to its repair being given priority. Such priorities may be laid down by the workshop commander in consultation with area/command EMEs. The various types of service are explained in Section 2 of this chapter.

SECTION 2—DIVISION OF REPAIR

405. **Area Workshops**

a. These form part of command and area EME services.

b. They are located within commands and areas near the concentration of workloads.

c. Detachments may be sent out when it is more economical to carry out repairs in situ.

d. Work beyond repair facilities is backloaded through RCOC channels for replacement or for eventual repair in base workshops.

406. **Base Workshops**

a. These workshops come under the direct technical control of DEME for base repair on a national basis, usually by specific programs.

b. For purposes of economy, the Workshop Branch, 27 COD also carries out field repair for units in Western Ontario Area.

c. For most efficient production, base workshops specialize in specific types of equipment.

407. **Repair Beyond Workshop Capacity**

a. RCEME may arrange for civilian contracts through the Department of Defence Production for repairs to technical equipment in the following cases:

(1) when repair work is highly specialized, requiring expensive equipment and specially trained personnel and when it is neither economically sound for such equipment to be purchased nor for such personnel to be trained for military purposes, e.g., the repair of computing equipment;

(2) when large stocks or stores require factory overhaul or major modifications;

(3) when extensive manufacturing is required.

408. **Types of Service**

a. EME services are provided at the request of units or according to a prearranged schedule. Service on a prearranged schedule consists of inspections and visits by MSS as directed by command and area EMEs. The following types of service are available at all RCEME workshops:

(1) *Normal EME Services.* Units requesting service (with no urgent priority) will submit a Request for Services (CAFC 2149) to the RCEME workshop for an acceptance date. The workshop will order all parts necessary to complete the repairs requested before accepting the equipment.

(2) *Immediate EME Services.* Units requesting immediate repair services may deliver the equipment requiring repair along with the covering Request for Services to the workshop without a prior acceptance date, provided the need for priority is established.

(3) *Emergency EME Services.* Units requesting emergency repairs may deliver the equipment to the workshop without a Request for Services and submit the request later.

b. *Quick Repair*

With availability of tradesmen permitting, workshops provide a quick repair service for minor repairs to vehicles, such as replacing fan belts, cables, making adjustments, etc. A repair bay, where perhaps 10 per-

cent of the vehicle tradesmen are employed, is set up to give immediate service to customers and no advance paper work is required. Units arrive with their vehicles and they get prompt attention. CAFC 2149s can be prepared at the workshop whilst repairs are being carried out or submitted later by the unit. Every workshop should have a quick repair bay.

409. Division of Responsibility

a. Both the control officer and the production supervisor of a RCEME workshop play an important part in the repair of equipment from the time it arrives at the workshop for repair until it is completed and returned to the unit. The division of responsibility between these two positions is as follows:

(1) *Control Officer*

This officer is responsible for:

(a) ensuring that the Request for Services (CAFC 2149) is completed correctly;

(b) ordering parts to complete the repair;

(c) estimating hours of completion;

(d) calculating and advising acceptance dates;

(e) ensuring that equipment, when received for repair, is IN inspected;

(f) authorizing work to proceed or recommending it to be backloaded, be sent to civilian contract or be condemned;

(g) correct completion of Equipment Failure Reports (CAFC 2072), Abnormal Condition Reports (CAFC 2359) and estimates for accident reports if necessary;

(h) supervising workshop control procedures including civilian contract, as detailed in EME Manual Management K 010 and L 101 to L 107 inclusive;

(i) ensuring that all workshop accounting forms and returns are completed properly;

(j) maintaining constant liaison with Ordnance regarding stock levels and availability of parts;

(k) working closely with the production supervisor to help ensure delivery dates are met and not held up for parts;

(l) maintaining constant liaison with DDP representatives and civilian contractors to ensure that:

i. proper financial procedures are followed,

ii. any complaints are resolved,

iii. the work contracted for is done satistorily.

(2) *Production Supervisor*

The production supervisor is responsible for:

(a) ensuring that the latest repair techniques are being used in all sections of the workshop;

(b) ensuring the most economical use of parts, material and equipment;

(c) ensuring the most efficient use of productive effort, parts, materials and equipment;

(d) being familiar with all types of equipment currently in use and new types of equipment being introduced;

(e) being conversant with technical manuals and references pertaining to every repair section;

(f) knowing the capability of the foremen in all sections;

(g) correcting any faults or discrepancies in repair procedures as necessary;

(h) enforcing safety regulations and fire precautions throughout the workshop;

(i) conducting a proper trades upgrading program for group 1 and 2 tradesmen;

(j) providing the opportunity for all tradesmen to practice their trade and preparing group 3 NCO tradesmen for artificer courses;

(k) supervising section heads and ensuring that work is being distributed equally amongst the tradesmen and sections;

(l) ensuring that work flows through the workship without delay, ensuring that production delays are investigated immediately and if necessary reported to the control officer, ensuring that promised delivery dates are met and generally getting work completed as quickly as possible.

SECTION 3—STORES SUPPLY

410. The speed with which repairs can be carried out is closely allied to the efficiency of the stores supply system. The normal chain of supply is through RCOC channels. A RCOC spare parts stores section (SPSS) operates with all RCEME workshops so that parts will be readily available to support the repair.

411. The stocks of spare parts held by RCOC SPSS supporting a workshop are based on a calculated usage rate which is published as a scale. The initial stock issued to a SPSS is based on this

scale; thereafter the stock is adjusted in the light of experience and to meet actual needs. Bulk requirements that can be foreseen, for such operations as routine engine changes, track or wheel changes on a mileage basis, etc, should be specially provided for. A workshop commander can order parts held in excess of usage if he can foresee a requirement.

412. Units are provided with small stocks of spares sufficient to cover actual requirements. Replenishment of unit stocks and issue of special stores not normally held are made from Ordnance depots.

413. The stores with which static RCEME workshops are stocked are intended for use by them and, except in emergency, they do not make issues to other units.

414. The normal system of supply is flexible and can be modified or supplemented to cope with emergency demands or additional sources of supply, at the discretion of RCOC personnel, in consultation with the workshop commander.

SECTION 4—MODIFICATIONS

415. Modifications of existing equipment may be found necessary for the following reasons:

a. A defect or equipment failure, as reported by a user unit.

b. A requirement not foreseen when the equipment was originally designed.

c. A requirement to meet special climatic or other local conditions.

d. To improve the capabilities or operation of an equipment.

416. Authorized modifications to equipments are normally issued as EME Manual instructions and are allotted a priority classification as detailed in EME Manual, Management H 501. The actual modifications are carried out by RCEME workshops. However, some modifications, in the case of standard commercial vehicles, are carried out by user units on instructions received in the form of manufacturers service bulletins. Modification instructions on some requirements are received from Britain and these are republished as EME Manual instructions.

417. When a failure or defect occurs in equipment, the supporting RCEME unit raises an Equipment Failure Report (CAFC 2072) (see EME Manual, Management H 601 for details) which is forwarded to DEME through RCEME channels. As a result of this report and after consultation with design directorates, a modification to eliminate the defect or failure, if justified, is originated and issued as an EME Manual instruction under the applicable equipment section. Similarly, where the manufacturer discovers a failure, a modification instruction will be forwarded to DEME and in turn republished as an EME Manual instruction.

SECTION 5—INSPECTION

418. General

Regular inspection is essential for efficient equipment maintenance and the inspection section is an important part of the RCEME organization. Inspection may conveniently be considered in three categories, i.e., equipment held by units, equipment held by stores installations and equipment being repaired by workshops.

419. Inspection of Equipment Held by Units

a. Commanding officers are directly responsible for their unit equipment and will carry out regular inspections to ensure that it is complete and serviceable. Tradesmen in unit establishments are available to carry out the technical aspects of these inspections.

b. To assist in keeping unit equipment serviceable, regular technical inspections are carried out by area RCEME inspection teams. The responsibility for carrying out these inspections rests with command and area EMEs.

c. The detailed responsibility for RCEME technical inspections and the frequency with which they will be carried out are laid down in EME Manual Management H 101, H 115 and H 120.

420. Inspection of Equipment Held by Stores Installations

The inspection and classification before issue or re-issue of technical equipment held by the RCOC depots or other store holding installations is generally the responsibility of RCEME. The procedure, covering these inspections is contained in EME Manual Management H 110.

421. Inspection of Equipment Being Repaired by RCEME Workshops

a. The exact nature of these inspections varies with the workshop and type of repair but their purpose is to determine the extent of repairs required and to ensure that their condition is up to a specified standard when the repairs are complete.

b. Equipments are normally all OUT inspected to ensure the repairs requested have been completed and the equipment is safe to operate. IN inspection covers:

(1) checking the equipment inspection report (CAFC 2208 in the case of wheeled vehicles) to see that repairs requested are not a unit responsibility;

(2) if no inspection report accompanies the equipment, inspection personnel preparing their own report;

(3) checking the inspection report against the equipment to see that all necessary repairs have been entered on the report, this may entail a road test in the case of vehicles;

(4) if necessary, correcting inspection reports and then entering all repairs necessary on CAFC 2149 (report accompanies copy 5 of CAFC 2149);

(5) advising whether or not inter-shop jobs are required (recorded on CAFC 2149);

(6) estimating time and parts required (recorded on CAFC 2149).

SECTION 6—PERMISSIVE REPAIR SCHEDULES

422. Permissive Repair schedules are documents prepared for use in field units. They indicate the scope of repair which may be undertaken in both RCEME and non-RCEME units where the tactical situation and availability of time, tools and parts are the main factors. They apply to field units in Canada but do not apply to static area workshops because of the restrictions which this would impose on the trades upgrading training programme carried out in these workshops.

423. The policy governing these schedules is explained fully in EME Manual, General H 300. Schedules for each type of equipment will be found in the applicable equipment instruction of the manual.

SECTION 7—BASE REPAIR AND BACKLOADING

424. The guiding principle is that repairs will be completed at the nearest location that is economically possible. A workshop will not carry out repairs in excess of its capability as determined by the workshop commander.

425. Detailed procedure on base repair and backloading is contained in EME Manual Management H 700.

SECTION 8—WORKSHOP ACCOUNTING

426. Is is essential that maximum productivity must be obtained from the Corps manpower by the most economical means. In order to provide such service, efficient work planning and loading of a workshop is necessary. Such planning and loading is controlled and administered by means of workshop accounting procedures.

427. Workshop accounting involves forms and procedures for controlling the flow of work in the workshop, accounting of labour (both military and civilian) and compilation of returns. These returns are submitted to DEME and are the basis for national statistics which in turn are the means of improving present procedures.

428. EME Manual, Management K 010 describes and gives complete details on workshop accounting procedures in current use.

SECTION 9—REPAIR BY CIVILIAN CONTRACT

429. The various types of civilian contract are explained in Chapter 2, Section 14. RCEME repair procedure by civilian contract is detailed in EME Manual Management, Section L.

SECTION 10—FABRICATION BY STATIC WORKSHOPS

430. The procedure for fabrication by static RCEME Workshops is described in EME Manual, Management H 400.

SECTION 11—CONDEMNATION

431. The procedure for condemnation of equipment and tooling is detailed in EME Manual, Management H 550, H551 and H 555.

SECTION 12—DEFECTS, FAILURES AND ABNORMAL CONDITIONS

432. The method of reporting failures and design defects in technical equipment is described in EME Manual, Management H 601.

433. Failures in Ordnance Stores and POL products are reported in accordance with the Ordnance Manual Volume 7 and the S&T Manual respectively.

434. The procedure to be followed when stores are found to be in abnormal condition is described in EME Manual, Management H 651.

SECTION 13—MISCELLANEOUS REPAIRS

435. **References**

a. The following EME Manual instructions, Management part, covering miscellaneous repair policies and procedures are listed as a ready reference for RCEME personnel and user units.

(1)	Safes Office Combination	B 117
(2)	Electric Organs	B 118
(3)	Generating Equipment	B 141
(4)	Ordnance Stores—Rundown Maintenance Category (Obsolescent)	H 047
(5)	Engineer Stores	H 050
(6)	Stores Covered by Manufacturers Warranty	H 201

CHAPTER 5

ADMINISTRATION

SECTION 1—GENERAL

501. Personnel Documentation

a. Personnel documents are the responsibility of the administrative officer and are maintained by the orderly room staffs of units. All personnel documents and personal files will be classified as CONFIDENTIAL.

b. Workshops geographically separated from company headquarters maintain Individual Training Records and Conduct Sheets.

c. Civilian documentation is the responsibility of the appropriate civilian personnel officer. However, units are responsible for time sheets, leave, sick and accident reports required for civilian personnel.

d. The necessity for great care in the maintenance of documents and reports cannot be over-emphasized. They are designed to provide a complete and permanent record of service. Accuracy and legibility are therefore the principal requisites of sound documentation.

e. The preparation and maintenance of documents are explained fully in the Canadian Army Manual of Records.

f. Units should also maintain a personal file system both for military and civilian personnel under command.

g. Documents will not be removed from the unit orderly room unless authorized. Unauthorized personnel will not have access to classified documents.

502. Military Writing

A standard method of layout and a comprehensive set of rules governing all forms of military writing in the Canadian Army are set forth in CAMT 1-36, Canadian Army Manual of Staff Procedures (1961) Volume 1, Military Writing. All officers and clerical personnel must be fully conversant with this manual in order to produce the standard of proficiency which is required in correspondence emanating from RCEME units.

SECTION 2—ORDERS AND PUBLICATIONS

503. Unit Standing Orders

a. Standing Orders are issued by all RCEME units, including workshops and include orders that are peculiar to the station or unit. Such orders detail standard procedures, thus eliminating constant repetition in other orders. They adapt regulations to local conditions.

b. Standing Orders must be:

(1) brief, for ease of comprehension;

(2) reviewed at specified intervals and kept up to date;

(3) adequately circulated.

c. Suggested general headings for unit standing orders are as follows:

(1) Area (restrictions etc.)

(2) Arms, Equipment and Clothing

(3) Bounds

(4) Care of Government Property

(5) Defaulters

(6) Dress

(7) Duties

(8) Electrical Appliances

(9) Gambling

(10) Leave and Passes

(11) Medical Arrangements

(12) Pedestrians

(13) Personal Effects

(14) Personal Hygiene

(15) Pets

(16) Possession and/or Consumption of Alcoholic Beverage

(17) Postal Arrangements

(18) Radios

(19) Sanitation

(20) Telephones

(21) Television

504. **Unit Orders Part 1**

a. Unit Orders Part 1 deal with matters requiring notification to unit personnel but which do not affect their pay, documents or service.

b. These orders are published by authority of the Commanding Officer. All RCEME companies, and in most cases, workshops, should publish Part 1 Orders at least weekly. Such orders will be posted in a prominent place to ensure that all ranks will see them and acquaint themselves with the contents on the day they are promulgated.

c. Entries in Unit Orders Part 1 include duties, parades, training, discipline, boards of inquiry, employment, intra-unit postings, dress, messing, police, bounds, special instructions and announcements.

505. **Unit Part 2 Orders**

a. Part 2 Orders are prepared and published by all RCEME self-accounting units. Their purpose is to provide a record of service for all ranks on unit strength.

b. Complete instructions on the preparation and publication of Part 2 Orders are contained in the Canadian Army Manual of Records.

506. **Unit Fire Orders**

These orders, which pertain to fire safety regulations, care and inspection of fire fighting equipment and procedures for fire fighting, are usually issued as an annex to unit standing orders. Copies should be displayed in prominent places and at the sites of fire fighting equipment. When preparing Fire Orders, reference should be made to the Canadian Army Manual of Army Works Services, Fire Safety Volume 1954.

507. **Unit Security Orders**

These orders, which pertain to the security of grounds, buildings, stores and equipment, documents and correspondence, are usually issued as an annex to unit standing orders. Copies of these orders should be displayed on notice boards for the information of all ranks. When preparing Security Orders, reference should be made to CAO 255-1.

508. **Publications**

a. Canadian Army Publications are produced for the purpose of notifying policies, procedures, regulations, orders and doctrine for the Army. These publications may be divided into three categories as follows:

(1)	Temporary or trial policies and procedures	— General Staff Instructions Adjutant-General Instructions Quartermaster-General Instructions
(2)	Policy, regulations and permanent orders and detailed instructions	— Canadian Army Orders Queens Regulations (Army) Canadian Army Manual of Records
(3)	Training doctrine	— Training Manuals and Instructions

b. Orderly room staffs are responsible for the maintenance of all publications and should be familiar with their contents. Information affecting unit personnel should be extracted from such publications and promulgated in unit orders.

509. **Reference Libraries**

a. Each company and workshop headquarters has a standard RCEME reference library for the purpose of providing reference material for trades training, manage-

ment and general engineering subjects. The publications and books provided will be those that are used as reference material in current trade specifications and training standards.

b. Demands for books and publications are made by DEME, on authority of COpR, and procured and distributed automatically by RCOC. Issues are based on actual requirements related to the personnel on unit establishments. Publications and books are purchased from public funds and therefore are accountable documents to be controlled in accordance with the Ordnance Manual, Volume 7, Chapter 301.

c. Complete details on RCEME reference libraries are contained in EME Manual, General R 200.

SECTION 3—RCEME INSTRUCTIONS AND PUBLICATIONS

510. General

a. This section describes briefly the instructions and publications issued by DEME or Command EMEs to RCEME units. They consist of:

(1) RCEME Technical Instructions (EME Manual)

(2) Spare Parts Scales Documents

(3) Repair Specifications

(4) Workshop Activity Summaries

(5) Technical Bulletin

(6) Director's Letters

(7) Training and Exercise Instructions.

511. EME Manual Instructions

a. The Canadian Army Electrical and Mechanical Engineering Manual (EME Manual) is a series of instructions produced by DEME which provide:

(1) information and direction on the constitution, functions and administration of the Corps;

(2) information and directives required by RCEME and unit personnel who use and maintain technical equipment;

(3) supplementary information on technical stores provision and accounting;

(4) supplementary information on the technical operation and training aspects of technical stores.

512. Spare Parts Scales Documents

a. RCEME assess the range and quantity of spare parts required for the repair of technical equipment used in the Army so that RCOC can calculate the total require-

ments for procurement and stocking. The assessment is provided through the medium of scales documents, prepared by base workshops, approved by DEME and published by DCER, which come under the following categories and which cover every type of military equipment introduced into the Army:

(1) Initial Spares Schedules (ISS).

(2) Canadian Army Supply Manuals (CASM), Parts List and Scales or RCEME Scales.

(3) Provision Schedules.

(4) Overhaul Program Scales.

(5) Issue Scales Special.

b. The following scales documents are no longer produced and are superseded by the applicable CASM as they are published:

(1) Canadian Basic Scales of Spare Parts.

(2) Issue Scales (Canada) Field.

(3) Issue Scales (War) Field.

(4) Issue Scales (War) LAD.

(5) Issue Scales (Canada) LAD and Static RCASC Company.

(6) Issue Scales (Special) Static RCASC Company.

c. The scales mentioned in paragraph 512A are further described in EME Manual General S 010 and S 020.

513. **Repair Specifications**

Repair specifications are published normally by DEME as a supplement to the policy of repair by civilian contract. Such specifications are prepared for the purpose of governing repairs carried out on a programmed or individual item basis by civilian contract or by RCEME base workshops.

514. **Workshop Activity Summaries**

a. These summaries are prepared by DCER from information reported in the number four (4) copy of the completed CAFC 2149 are submitted to DEME.

b. The following summaries are produced for the information of RCEME units to assist them in present and future organization and production planning.

(1) Job 100 Workshop Activity Summary (By Workshop). Produced monthly and details the work completed by trade sections and by equipment group.

(2) Job 101 National Workshop Activity Summary (By Item and Workshop Section). Produced monthly and details the national work completed by trade sections and by equipment group.

(3) Job 103 Annual and Cumulative Repair History for Vehicles and Engineer Equipments (By CAR Numbers, Part 'B' 4 CIBG). Prepared semi-annually and details annual and cumulative repair cost history.

(4) Job 105 Annual and Cumulative Repair Cost History for Vehicles and Engineer Equipments in Canada (By Command/Area, User Unit, Type and Car Number). Prepared semi-annually and details annual and cumulative repair cost history.

(5) Job 106 Workshop Activity Summary (By Workshop). Produced annually on a quarterly basis and details the work completed by trade sections and by equipment group.

(6) Job 107 National Workshop Activity Summary (By Item and Workshop Section). Produced anually on a quarterly basis and details the work completed by trade sections and by equipment group.

515. **Technical Bulletin**

This bulletin is published by DEME as a means of periodically disseminating information on technical matters, current and future Corps policy and items of general interest to the Corps. The bulletin is normally published every three months.

516. **Director's Letters**

a. Director's Letters are a series of letters issued for the purpose of:

(1) disseminating information on the activities of the Directorate of Electrical and Mechanical Engineering and in particular keeping the Corps informed on the progress of matters in the planning stage;

(2) ensuring that Corps policy is known to all officers at appropriate levels.

b. They are issued as required and are numbered consecucutively.

517. **Training and Exercise Instructions**

Training or exercise directives may be issued by DEME or COpR at the beginning of each training cycle. These instructions, based on CFHQ training policy, will detail particular aspects of Corps training and national survival operations.

SECTION 4—RCEME REPORTS AND RETURNS

518. A system is required to ensure that reports, returns etc are accurately prepared and consolidated and that they reach their destination at the required time.

519. A brief description of returns/reports of a continuing nature required by DEME from RCEME units is as follows:

a. *Copy 4 of Request for Services (CAFC 2149)*

This copy, showing the hours of labour and costs of parts is forwarded weekly to DEME (EME Manual Management K 010 refers).

b. *Monthly Time Return (CAFC 2304)*

This return is a summary of total time available, expended and direct labour by trades. The original copy is forwarded to DEME each month. (EME Management K 010 refers).

c. *Report on Civilian Contract*

Copy No 8 of Dealer's Estimate and Work Authorization Orders (DEWAO), showing the actual cost of the job, is forwared to DEME at the end of each mnoth. (EME Manual Management L 105 refers).

d. *Spare Parts Issue Scales Progress Report*

This report is a bi-monthly report showing the spare parts issue scales in progress. The report is received only from 202 Base Workshop and Workshop Branch 27 COD.

e. *RCEME Accommodation Report*

This is a quarterly report submitted by Command EMEs, 202 Base Workshop, Workshop Branch 27 COD and RCEME School, which shows the state of progress of all current accommodation projects in RCEME units.

f. *Industrial Accident Report*

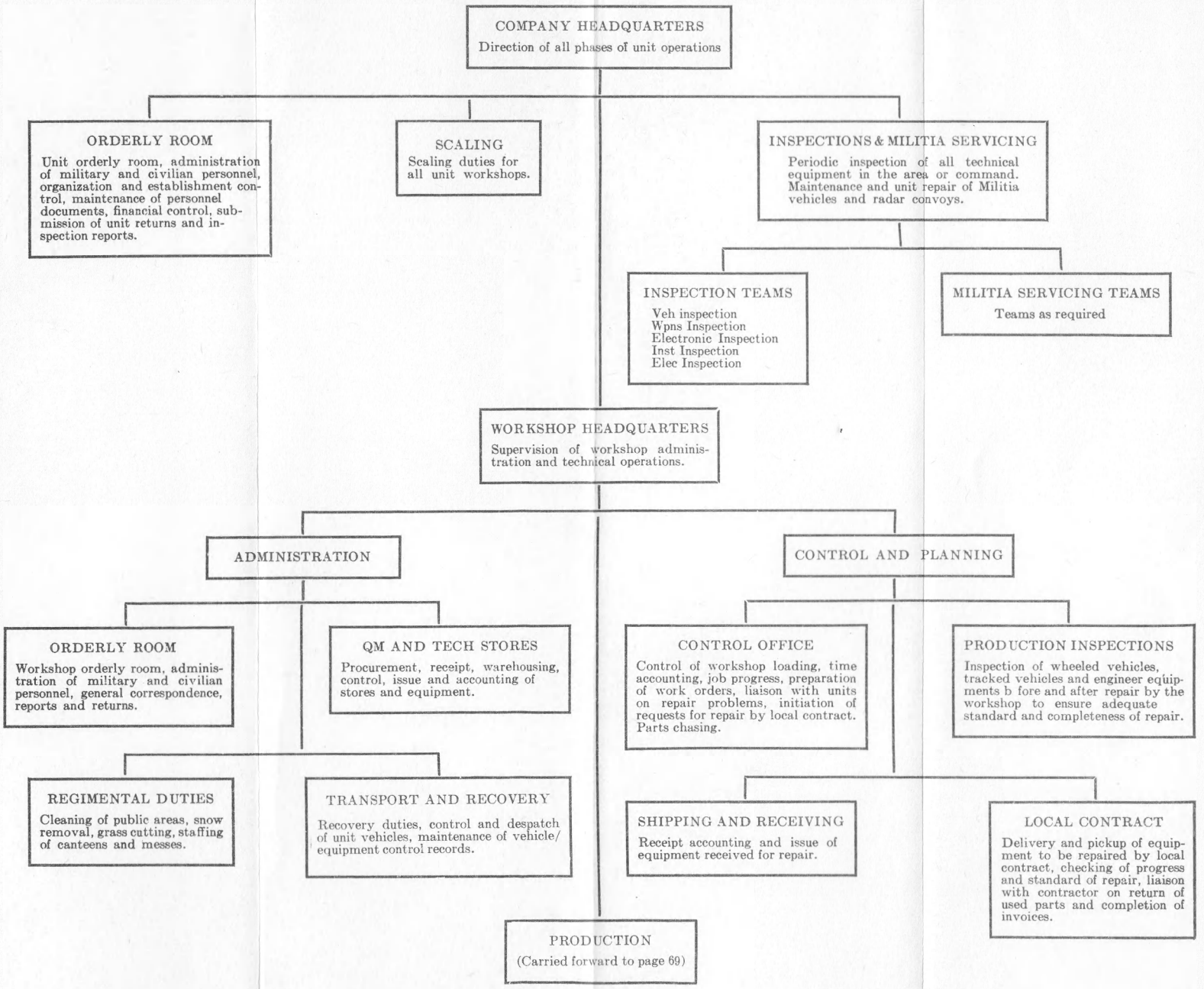
This is a monthly return detailing the hours lost and the nature and causes of industrial accidents to personnel in RCEME units. These accidents are summarized annually by DEME and distributed to all RCEME units.

g. *Progress Status Report.*
This is a bi-monthly and as required report submitted by 202 Workshop RCEME and the Workshop Branch 27 COD RCOC showing the progress of projects sponsored by CFHQ and other projects of special interest to CFHQ.

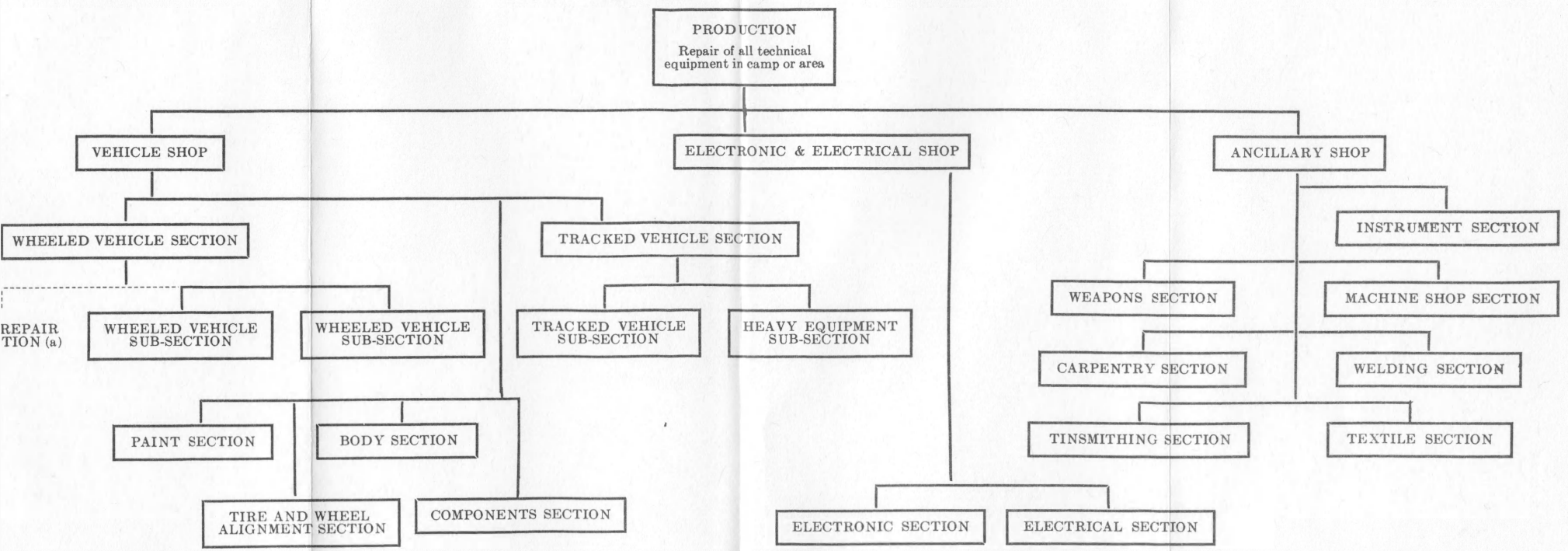
ORGANIZATION OF RCEME COMPANIES

ANNEX A

RCEME COMPANY WITH TWO OR MORE WORKSHOPS


COMPANY HEADQUARTERS
Direction of all phases of unit operations
ORDERLY ROOM
Unit orderly room, administration of military and civilian personnel, organization and establishment control, maintenance of personnel documents, financial control, submission of unit returns and inspection reports.
SCALING
Scaling duties for all unit workshops.
INSPECTIONS & MILITIA SERVICING
Periodic inspection of all technical equipment in the area or command. Maintenance and unit repair of Militia vehicles and radar convoys.
INSPECTION TEAMS
Veh inspection
Wpns Inspection
Electronic Inspection
Inst Inspection
Elec Inspection
MILITIA SERVICING TEAMS
Teams as required
WORKSHOP HEADQUARTERS
Supervision of workshop administration and technical operations.
ADMINISTRATION
CONTROL AND PLANNING
ORDERLY ROOM
Workshop orderly room, administration of military and civilian personnel, general correspondence, reports and returns.
QM AND TECH STORES
Procurement, receipt, warehousing, control, issue and accounting of stores and equipment.
CONTROL OFFICE
Control of workshop loading, time accounting, job progress, preparation of work orders, liaison with units on repair problems, initiation of requests for repair by local contract. Parts chasing.
PRODUCTION INSPECTIONS
Inspection of wheeled vehicles, tracked vehicles and engineer equipments b fore and after repair by the workshop to ensure adequate standard and completeness of repair.
REGIMENTAL DUTIES
Cleaning of public areas, snow removal, grass cutting, staffing of canteens and messes.
TRANSPORT AND RECOVERY
Recovery duties, control and despatch of unit vehicles, maintenance of vehicle/equipment control records.
SHIPPING AND RECEIVING
Receipt accounting and issue of equipment received for repair.
LOCAL CONTRACT
Delivery and pickup of equipment to be repaired by local contract, checking of progress and standard of repair, liaison with contractor on return of used parts and completion of invoices.
PRODUCTION
(Carried forward to page 69)

ORGANIZATION OF RCEME COMPANIES

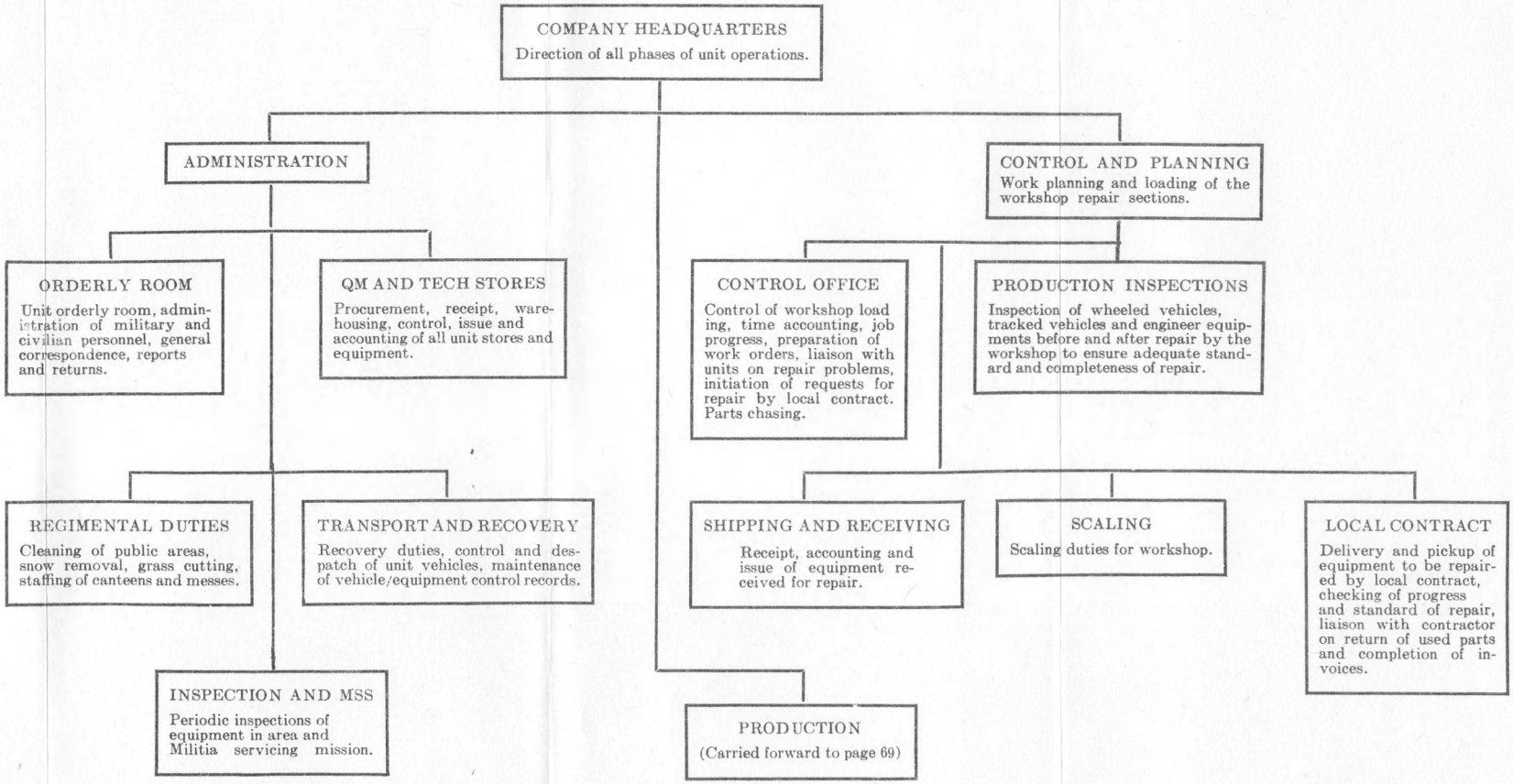


Note (a) To be staffed with production personnel as required.

ANNEX A

ORGANIZATION OF RCEME COMPANIES

RCEME COMPANY WITH ONE WORKSHOP


COMPANY HEADQUARTERS
Direction of all phases of unit operations.
ADMINISTRATION
CONTROL AND PLANNING
Work planning and loading of the workshop repair sections.
ORDERLY ROOM
Unit orderly room, administration of military and civilian personnel, general correspondence, reports and returns.
QM AND TECH STORES
Procurement, receipt, warehousing, control, issue and accounting of all unit stores and equipment.
CONTROL OFFICE
Control of workshop loading, time accounting, job progress, preparation of work orders, liaison with units on repair problems, initiation of requests for repair by local contract. Parts chasing.
PRODUCTION INSPECTIONS
Inspection of wheeled vehicles, tracked vehicles and engineer equipments before and after repair by the workshop to ensure adequate standard and completeness of repair.
REGIMENTAL DUTIES
Cleaning of public areas, snow removal, grass cutting, staffing of canteens and messes.
TRANSPORT AND RECOVERY
Recovery duties, control and despatch of unit vehicles, maintenance of vehicle/equipment control records.
SHIPPING AND RECEIVING
Receipt, accounting and issue of equipment received for repair.
SCALING
Scaling duties for workshop.
LOCAL CONTRACT
Delivery and pickup of equipment to be repaired by local contract, checking of progress and standard of repair, liaison with contractor on return of used parts and completion of invoices.
INSPECTION AND MSS
Periodic inspections of equipment in area and Militia servicing mission.
PRODUCTION
(Carried forward to page 69)

TRADES UPGRADING TRAINING CONTROL CHART

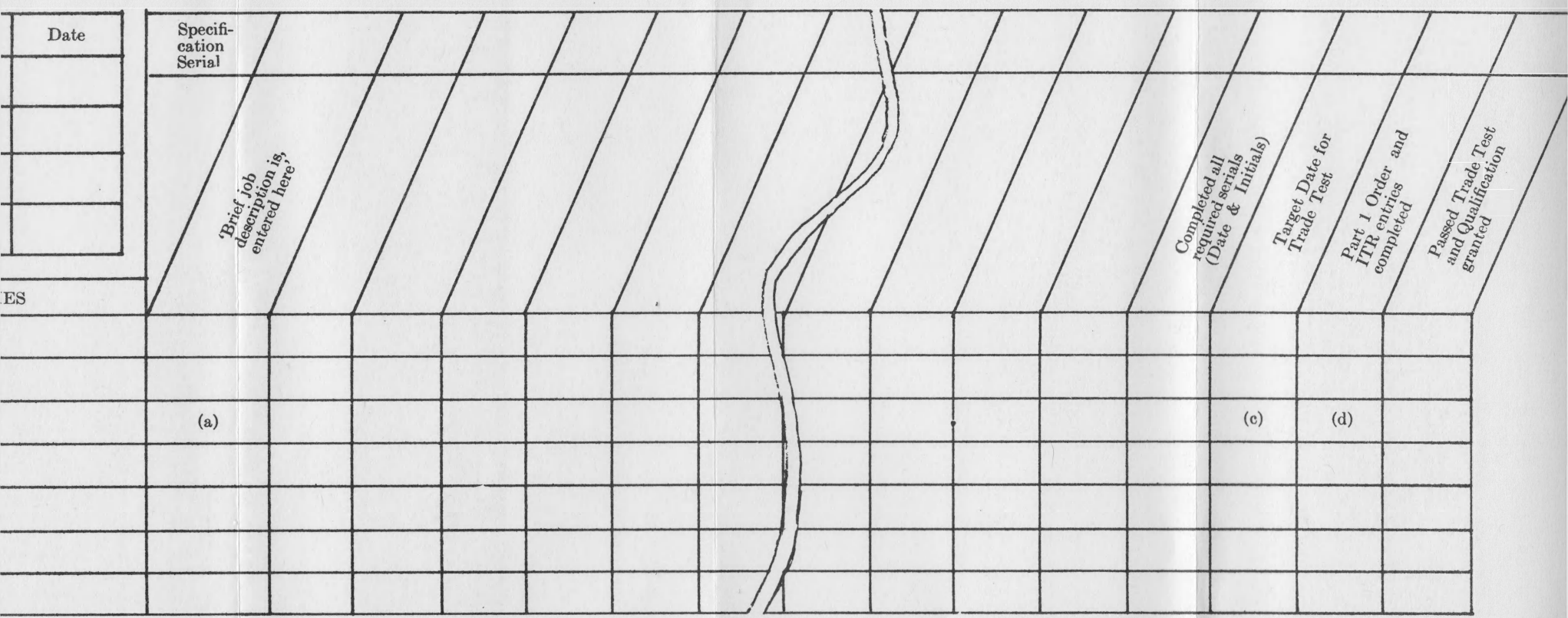
GROUP..... TO GROUP.....

NAME OF TRADE.....

.....

.....

.....



o be initialled and dated when training is completed.

hese review blocks are reserved for officers.

s many tradesmen as possible should be ready for trade testing at the same time.

art 1 Order entries may be made for partial completion of training to ensure that the man is given full credit.

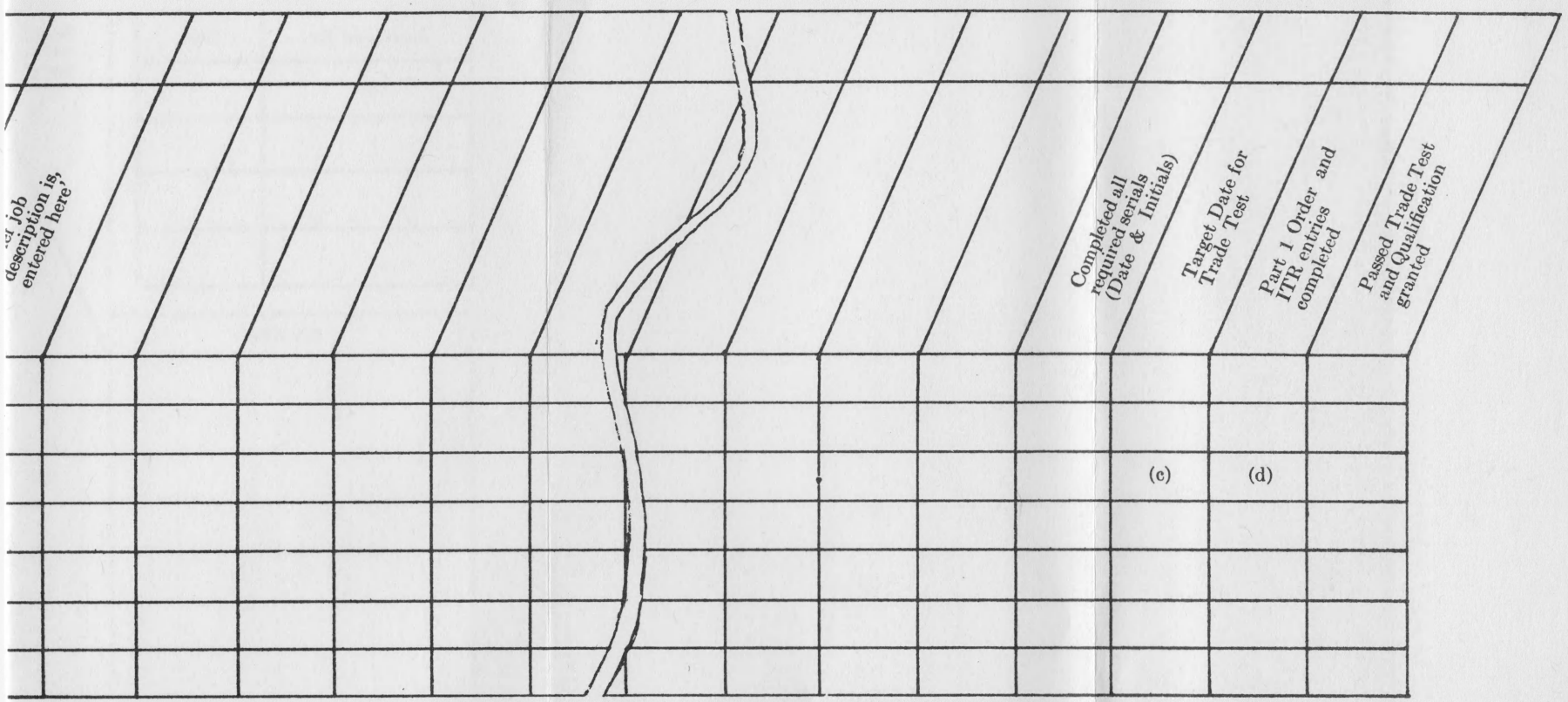
This chart may be made locally in any suitable size. A large display board is preferable.

ANNEX B

TRADES UPGRADING TRAINING CONTROL CHART

GROUP..... TO GROUP.....

NAME OF TRADE.....


job description is, entered here'
Completed all required serials (Date & Initials)
Target Date for Trade Test
Part 1 Order and ITR entries completed
Passed Trade Test and Qualification granted
(c)
(d)

training is completed.
for officers.
should be ready for trade testing at the same time.
e for partial completion of training to ensure that the man is given full credit.

ly in any suitable size. A large display board is preferable.